This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Educ 2848.29.2

HARVARD
COLLEGE
LIBRARY

3 2044 096 985 692

Isabel F. Walker

WISCONSIN NORMAL SCHOOLS.

PROCEEDINGS

OF AN

Institute of the Faculties

OF THE NORMAL SCHOOLS,

Held at Oshkosh, December 17-21, 1900.

CONDUCTOR,

HON. L. D. HARVEY,

State Superintendent.

Madison, April, 1901.

Educ 2848.29.2

HARVARD COLLEGE LIBRARY

PRINTED FOR

THE BOARD OF REGENTS OF NORMAL SCHOOLS

BY THE DEMOCRAT PRINTING CO.,
MADISON, WIS.

PREFACE.

To the Board of Regents of Normal Schools:

GENTLEMEN: The Special Committee charged with the management of the Institute of Teachers recently held at Oshkosh, herein presents a compilation of the Papers and Discussions submitted. The work of selecting and editing the mass of matter which was gathered, has been no less delicate than laborious, and such delay as has occurred in putting the manuscript to press, is due to a desire to compile a volume of the most value possible, as well as one fairly representative of the schools.

The omission of certain material which may be observed, is either explained in the text by editorial notes, or is due to the misapprehension of writers whose papers were not consonant with the purposes of the Institute, or to a similarity of treatment of an assigned topic.

It does not follow that the publication of this Report involves plenary indorsement by the Committee, but rather a general approval and an expression of belief in its usefulness.

L. D. HARVEY,
J. Q. EMERY,
A. E. THOMPSON,
Special Committee.

CONTENTS.

Subject	Author	Page
Preface	Special Committee	iv
Authorization of Institute	Board of Regents	ix
Program of Institute	Hon. L. D. Harvey	x

PART I.

GENERAL SESSIONS.

Conditions that influenced Board to hold Institute	Hon. J. Q. Emery	2
Day Plans to teach Unit "Conjunctions"	C. E. Patzer	75
Department Teachers, The relation of, to work in Model Schools	H. A. Adrian	85
Four Fundamental Propositions	Hon. L. D. Harvey	6
Discussion—General		13
Fundamental Questions	Hon. L. D. Harvey	16
Discussion—General		23
Lesson Plan, Exposition of	C. E. Patzer	72
Pedagogical Maxims, Truths, and Principles— Their need and application	Pres. Duncan McGregor	48
Pedagogical Maxims, Truths, or Principles— Are they known and applied?	Hon. L. D. Harvey	55
Professional Work, Possible elimination of some so-called	A. H. Sage	67
Psychological Truths	Pres. Charles McKenny	44
Psychology and Pedagogy needed by Normal Teachers	Committee	60
Psychology, Should all teachers in Normal Schools have some?	Pres. Albert Salisbury	43
Psychology, How can essentials of, be acquired and application secured?	Hon. L. D. Harvey	45
Questions, Answers to	Hon. L. D. Harvey	36
Recitation, The	Hon. L. D. Harvey	26

PART II.

SECTION SESSIONS.

Drawing		92
Blackboard sketching, Value and extent of	Lucy D. Hale	95
Constructive work, Amount and kinds, purpose and method	Harriet C. Magee	92
Report of Leader of Section	E. W. Walker	97

Subject	Author	Page
English		99
Composition, Purpose, Scope and Plan of work in	Herbert E. Bolton	106
Composition, Purpose, Scope and Plan of work in	Lillian G. Kimball	103
English, Supplemental teaching of, by teachers of other subjects	Albert Hardy	146
Grammar, Purpose, Scope, and Plan of work in	Anna Barnard	99
Principles, Important pedagogical, to be applied in teaching English	Albert Hardy	135
Propositions, Four Fundamental, Application of, in teaching Grammar	Grace D. Madden	118
Review, Professional, in Grammar	S. A. Lynch	111
Review, Professional, in Grammar	Carrie J. Smith	117
Rhetoric, Purpose, Scope, and Plan of work in	Josephine Henderson	109
Rhetoricals, Most effective use of, in teaching English	Robert Rienow	142
Report of Leader of Section	Albert Hardy	147
Work in English, oral and written, Place and relative importance of	Lillian Kimball	138
Geography		149
Supplementing Texts in, by outside reading	Alice DeReimer	155
Work in, Purpose, Scope, and Plan of	J. A .Merrill	149
Discussion	Cornelia E. Rogers	152
History, Political Economy and Civics		159
Economics, Aims in Teaching	W. H. Cheever	159
Fundamental Propositions, use in teaching History	Grace D. Madden	159
Discussion of Mrs. Madden's paper	G. C. Shutts	167
Organizing topic in History, Should it be taught?	E. W. Walker	171
Discussion of Prof. Walker's paper	James A. Wilgus	175
Work in Civil Government, Scope and Purpose of	A. H. Sanford	169
Supplementary to Prof. Sanford's paper	J. F. Sims	170
Latin and German		179
English, Command of, through study of Latin and German,—How best attained	W. S. Watson	187
German, Speaking knowledge of,—When to be aimed at	Clara Schuster	182
Grammar, German,—What knowledge of, ought students to master?	B. Mack Dresden	179
Latin Author,—May previous reading of translation of, be valuable?	C. W. Smith	185
Latin and German,—Plans in class-work for teaching	Pauline Wies	189
Report of Leader of Section	J. W. Livingston	192

Library 193
Instruction in Library Methods, Purpose and extent of .... Anne H. McNeil 193
Lists of Books and References, Extent and way to make most valuable ..... Caroline E. Silliman 195
Periodical Literature, How to use, to best advantage .... Mary F. Carpenter 198
Report of Leader of Section ..... Lizzie P. Swan 202

Literature, Including Library 210
Libraries, Public School,—How to make pupils acquainted with contents and methods of use ... Ellen F. P. Peake 210
Library Reading, Its place, relation to other work in Literature, plans and method ..... Fannie J. Holcombe 219
Literature, work in, Aims and methods of .... Albert Hardy 213
Discussion of Prof. Hardy's paper ..... Anna M. Cottrell 216
Report of Committee 223

Mathematics 224
Algebra, Purpose, Scope, and Plan of work in .. J. V. Collins 240
Algebra, Purpose, Scope, and Plan of work in .... H. H. Liebenberg 236
Arithmetic, Purpose, Scope, and Plan of work in .... M. A. Bussewitz 224
Arithmetic, Purpose, Scope, and Plan of work in .... L. H. Clark 227
Arithmetic, Purpose, Scope, and Plan of work in .... Emily F. Webster 229
Report of Committee 234
Geometry, Purpose, Scope, and Plan of work in .... G. L. Bowman 245
Geometry, Purpose, Scope, and Plan of work in .... G. C. Shutts 250
Report of Committee 253
Propositions, Four Fundamental, Application of .... G. C. Shutts 254
Report of Leader of Section ..... W. C. Hewitt 258

Model School Teachers 260
Teaching, Model, for Observation Classes,—How made most serviceable ..... Alfaretta Haskell 260
Teaching, Poor, by Pupil Teachers, Means to overcome bad effects of ..... J. I. Jegi 262
Report of Leader of Section ..... Nina Vandewalker 269

Music 270
Method, General, of the "How" in Recitation.. Grace Heward 270
Teachers, Effective, of Singing, Can all students be made such? ..... F. F. Churchill 274
Report of Leader of Section ..... Mae E. Schreiber 276

Physical Training 277
Health of Pupils under Training, Extent of Director's Responsibility for .....Nina A. Page 297
Needs, individual, Extent of consideration of ....Emma W. Shrieves 289
Physical Training, Purpose, Scope, and Plan of work in .....Lorraine J. Truesdell 277
Physical Training, Purpose, Scope, and Plan of work in .....Juliet V. Yeakle 281
Physical Training, Purpose, Scope, and Plan of work in .....Isabel F. Walker 287
Power to carry on work away from Normal,—How to secure ....Frances Musselman 293
Training for Boys and Girls,—What difference, if any, why and how? .....Susanne A. Look 301
Report of Leader of Section .....W. H. Cheever 304

Presidents and Board of Regents 305
Administration .....Pres. R. H. Halsey 305
Faculty Meetings .....Pres. T. B. Pray 314
Supervision .....Pres. Albert Salisbury 309

Professional Subjects, Teachers of 316
Ideals and Purposes in Professional Work, Unity of,—How to Secure .....Pres. Albert Salisbury 361
Discussion .....Pres. W. J. Brier 366
Model School as Correlating center of Normal ....Pres. I. C. McNeill 340
Discussion, General 344
Observation, Purposes of,—How to accomplish same—Value before and after teaching experience .Alice H. Shultes 348
Discussion .....A. J. Hutton 353
Discussion, General 355
Reviews, Professional, Scope and Character ....Pres. T. B. Pray 370
Spontaneity under Pedagogic Law, Securing Maximum of, in Supervision of Practice Teaching .....Rose C. Swart 316
Discussion, General 319
Supervisors of Practice, Special Report .....Rose C. Swart 372
Teaching by Normal students in their own classes ....J. W. Livingston 356
Discussion, General 359
Work in Model School,—What knowledge of, should Teachers of Professional Subjects have? .....C. P. Cary 325
Discussion .....G. L. Bowman 328
Discussion, General 333
Report of Committee 371

Science, Including Geography 373
Agriculture, Elements of .....A. A. Upham 440
Discussion, General 445

Biology, Purpose, Scope, and Plan in .....W. H. Dudley 403
Discussion, General 407
Reply .....W. H. Dudley 411
Chemistry, Purpose, Scope, and Plan in .....G. E. Culver 390
Discussion, General 392
Field Work in Biology, Geology, and Geography,—Possibility, desirability and character of .....J. A. Merrill 452
Geography, Purpose, Scope, and Plan in ..Frank E. Mitchell 433
Discussion, General 436
Geology, Purpose, Scope, and Plan in .....E. C. Case 423
Discussion, General 427
Knowledge, Scientific,—Correlation of related and value of Lesson Plan in teaching Science .....I. N. Mitchell 460
Discussion, General 463
Oral Exposition, Value of .....Hon. L. D. Harvey 456
Physics, Purpose, Scope, and Plan in .....A. H. Sage 373
Discussion, General 378
Physiology, Purpose, Scope, and Plan in Teaching .....
.....A. L. Ewing 417
Discussion, General 418
Science, Advanced work in,—Danger of beyond proper Scope and Purpose of our Course .....A. L. Ewing 466
Discussion, General 469
Work, Laboratory and Text-book, Relation of ..E. C. Perisho 471
Report of Leader of Section .....A. A. Upham 476

AUTHORIZATION OF THE INSTITUTE.

Extract from minutes Adjourned Annual Meeting, Board of Regents Normal Schools, October 24, 1900.

Resolved, That a one week's institute of all the Normal school faculties in the employ of the Board of Regents of Normal schools be held at Oshkosh, in the Normal school building, beginning at 9 o'clock Monday morning, December 17, 1900.

Resolved, That during the week said institute is in session the several Normal schools shall be closed, and the attendance by the teachers at the institute is hereby required and shall be considered a full discharge of contract obligations to the Board for that week.

Resolved, That the organization and management of the institute shall be under the general control of the following Special Committee, to-wit: L. D. Harvey, Chairman Committee on Institutes; J. Q. Emery, Chairman Committee on Course of Study and Text-Books; A. E. Thompson, Chairman Committee on Teachers.

Resolved, That Supt. L. D. Harvey be, and he is hereby appointed Conductor of the institute under the general direction of the Special Committee herein provided for.

Attest: S. S. ROCKWOOD,
Secretary.

PROGRAM

Of Normal School Institute.

MONDAY, Dec. 17, 1900, 9 A. M.

General Meeting.

Organization of institute.

I. Statement of conditions that influenced the Board of Regents of Normal schools to make provision for this institute.

J. Q. EMERY.

An opportunity will be offered for general discussion of all topics considered in the general and section meetings.

II. The following four propositions are fundamental for the teacher and for the pupil in the determination of what is to be done for and in the recitation.

1. The teacher must have in mind a definite purpose or purposes to be realized in the next recitation.

2. The teacher must have in mind the things which must be known or done in order that the purposes may be realized.

3. The teacher must determine what of the things falling under proposition 2 the pupil now knows or can do.

4. The teacher must determine what of the things enumerated under proposition 2 the pupil still has to learn or to do, and the order in which they should be known or done.

a. To what extent, where and for what purposes should these fundamentals be applied in Normal school work?

b. To what extent do they furnish a unifying basis for the professional work in the Normal schools?

c. How can the application of these fundamentals be secured?

d. Results of their application.

L. D. HARVEY.

MONDAY, 2 P. M.

General Meeting.

I. The recitation.

a. What should be demanded of the pupil in the recitation?

b. What should be demanded of the teacher?

c. How may these demands be enforced?

d. Modes of testing—characteristics of a proper test?

e. Purposes of drill exercises—necessity for, how determined.

f. Modes of drilling—characteristics of a good drill exercise.

g. Teaching in the recitation—its relation to testing and drilling.

h. Assignment of the next lesson.

L. D. HARVEY.

TUESDAY, 9 A. M.

General Meeting.

I. a. Should all teachers in a Normal school have some knowledge of psychology?

b. If so, what may be regarded as the essentials?

J. E. LOUGH.

II. a. Do all Normal school teachers have a knowledge of the essentials of psychology, and such a recognition of their value as will result in the application of these essentials in their teaching processes?

b. If not, how can such knowledge be acquired and the application secured?

L. D. HARVEY.

TUESDAY, 2 P. M.

Section Meeting.

DRAWING.

E. W. WALKER, Leader.

I. What should be the purpose, scope, and plan of work in drawing in the Normal school?

The person at the head of the department of drawing in each of the Normal schools is requested to send to the Conductor of the institute, by December 10, eight type-written carbon copies of her discussion of the foregoing topic. These copies will be promptly distributed among the teachers of drawing so that opportunity may be given for examination of the matter, and for preparation of suggestions and criticisms to be presented at the first meeting of the section. This meeting will be devoted to a discussion of these papers.

TUESDAY, 2 P. M.

Section Meeting.

ENGLISH.

ALBERT HARDY, Leader.

I. Purpose, scope, and plan of work in each of the following subjects:

1. Grammar,

ANNA BARNARD,
JENNIE WHITMAN.

2. Composition,

HERBERT E. BOLTON,
LILLIAN G. KIMBALL.

3. Rhetoric,

JOSEPHINE HENDERSON,
ISABELLA PRETLOW.

4. Professional review in grammar,

S. A. LYNCH,
CARRIE J. SMITH.

Each person assigned to prepare work in any of the foregoing subjects, is requested to send to the Conductor of the institute, by Decem-

ber 10, eight type-written carbon copies of the matter prepared. These copies will be promptly distributed among the teachers of English, so that opportunity may be given for examination of the matter, and for preparation of suggestions and criticisms to be presented at the first meeting of the section. This meeting will be devoted to a discussion of these papers.

TUESDAY, 2 P. M.

Section Meeting.

LIBRARY.

LIZZIE P. SWAN, Leader.

I. Scope of librarian's work in the Normal school.

LIZZIE P. SWAN.

II. What assistance can the librarian give to the heads of departments to facilitate use of reference library by students in the special work of each department?

ELLA G. PARMELE.

III. What work can librarians do in assisting students to use the reference library economically and intelligently?

BEE A. GARDNER.

IV. Should the librarian instruct students in library methods? If so, for what purpose, and to what extent?

ANNE H. MCNEIL.

TUESDAY, 2 P. M.

Section Meeting.

MATHEMATICS.

W. C. HEWITT, Leader.

I. Purpose, scope, and plan of work in each of the following subjects:—

1. Arithmetic,

M. A. BUSSEWITZ,
L. H. CLARK,
EMILY F. WEBSTER.

2. Algebra,

J. V. COLLINS,
H. LIEBENBERG.

3. Geometry,

G. L. BOWMAN,
G. C. SHUTTS.

Each person assigned to prepare work in any of the foregoing subjects, is requested to send to the Conductor of the institute, by December 10, eight type-written carbon copies of the matter prepared. These copies will be promptly distributed among the teachers of mathematics, so that opportunity may be given for examination of the matter, and for preparation of suggestions and criticisms to be presented at the first meeting of the section. This meeting will be devoted to a discussion of these papers.

TUESDAY, 2 P. M.

Section Meeting.

PHYSICAL TRAINING.

W. H. CHEEVER, Leader.

I. What should be the purpose, scope, and plan of work undertaken in the Normal school?

The person at the head of the department of Physical Training in each school is requested to send to the Conductor of the institute, by December 10, eight type-written carbon copies of the work prepared under the above topic. These copies will be promptly distributed among the teachers having this work in charge, so that opportunity may be given for examination of the matter prepared, and for preparation of suggestions and criticisms to be presented at the first meeting of the section. This meeting will be devoted to a discussion of these papers.

TUESDAY, 2 P. M.

TEACHERS OF PROFESSIONAL SUBJECTS.

J. I. JEGI, Leader.

I. In the supervision of practice teaching, how secure the maximum of spontaneity under the control of pedagogic law.

ROSE C. SWART.

Discussion opened by Thomas H. Gentle.

II. What knowledge of work in the model school should teachers of professional subjects have? Why? How may this knowledge be secured? How should this knowledge be utilized?

C. P. CARY.

Discussion opened by G. L. Bowman.

III. Discussion of topics proposed by members of the section.

TUESDAY, 2 P. M.

Section Meeting.

SCIENCE.

A. A. UPHAM, Leader.

I. Purpose, scope, and plan of work in each of the following subjects:—

1. Physics,

A. H. SAGE.

2. Chemistry,

G. E. CULVER.

3. Biology,

W. H. DUDLEY.

4. Physiology,

A. L. EWING.

Persons assigned for the work above are requested to send to the Conductor of the institute, by December 10, ten type-written carbon copies of the matter formulated. These copies will be promptly distributed

among the science teachers, so that opportunity may be given for examination of the matter, and for preparation of suggestions and criticisms to be presented at the first meeting of the section. This meeting will be devoted to a discussion of these papers.

TUESDAY, 2 P. M.

Section Meeting.

MUSIC.

MAE E. SCHREIBER, Leader.

I. What should be the purpose, scope, and plan of work in teaching music in the Normal school?

The person at the head of the department in music in each school is requested to send to the Conductor of the institute, by December 10, eight type-written carbon copies of work prepared upon the above topic. These copies will be promptly distributed among the teachers of music, so that opportunity may be given for examination of the matter prepared, and for preparation of suggestions and criticisms to be presented at the first meeting of the section. This meeting will be devoted to a discussion of these papers.

WEDNESDAY, 9 A. M.

General Meeting.

I. What important pedagogical maxims, truths, or principals should be known and applied by Normal school teachers?

DUNCAN MCGREGOR.

II. a. Are the important pedagogical maxims, truths, or principles now known and applied by Normal school teachers?

b. If not, by what means may they be mastered and their application secured, consciously at first, unconsciously later?

c. By what means may students be made conscious of the teacher's applications of these truths, maxims, or principles, so that they will come to recognize the possibility of applying them themselves, in a variety of ways, with a variety of subjects, under a variety of conditions?

L. D. HARVEY.

WEDNESDAY, 2 P. M.

Section Meeting.

DRAWING.

E. W. WALKER, Leader.

I. Amount and kinds of constructive work which should be done in connection with drawing. Purposes and method.

HARRIET CECIL MAGEE.

II. a. Value of blackboard sketching by teachers and pupils.

b. How and to what extent should blackboard sketching be taught in the Normal school?

LUCY DORRITT HALE.

III. Application of the four fundamental propositions hereinbefore stated, in teaching drawing.

E. W. WALKER.

IV. The place and purposes of copying in the teaching of drawing.

MARY E. TANNER.

V. Examination and explanation of special features of work from different schools.

WEDNESDAY, 2 P. M.

Section Meeting.

ENGLISH.

ALBERT HARDY, Leader.

I. Application of the four fundamental propositions hereinbefore stated, in teaching grammar, composition, and rhetoric.

GRACE DARLING MADDEN.

II. What important pedagogical principles should be applied in teaching the above named subjects? In what way may the teacher's application of these pedagogical principles be made to increase the student's power to apply them in teaching any subject?

ALBERT HARDY.

WEDNESDAY, 2 P. M.

Section Meeting.

LIBRARY.

LIZZIE P. SWAN, Leader.

I. To what extent and in what way can printed lists of books and references be made most valuable, not only in individual schools but by a system of exchange in all the schools?

CAROLINE SILLIMAN.

II. Methods of utilizing periodical literature to the best advantage.

MARY F. CARPENTER.

III. Preparation and uses of pictures.

ELIZABETH F. SIMPSON.

IV. Reports of individual methods of work.

V. Examination and explanation of material useful in illustrating the methods in vogue in each library.

WEDNESDAY, 2 P. M.

Section Meeting.

MATHEMATICS.

W. C. HEWITT, Leader.

I. Application of the four fundamental propositions hereinbefore stated in teaching arithmetic, algebra, and geometry.

G. C. SHUTTS.

II. Proper relation between the course of study in arithmetic in the model school, and the work done in the Normal classes. How secured?

L. H. CLARK.

III. General discussion of topics proposed by members of the section.

WEDNESDAY, 2 P. M.

Section Meeting.

MUSIC.

MAE E. SCHREIBER, Leader.

I. The application of the four fundamental principles hereinbefore mentioned, to the teaching of music.

MAE E. SCHREIBER.

II. General method of the *how*, in the recitation.

GRACE HEWARD.

III. a. Can all students be so trained as to make them effective teachers of singing in the public schools?

b. If so, will the time and effort necessary to secure this training be the best possible expenditure of time and effort for students and teachers?

c. If not, what then?

F. F. CHURCHILL.

WEDNESDAY, 2 P. M.

Section Meeting.

PHYSICAL TRAINING.

W. H. CHEEVER, Leader.

I. To what extent may the individual needs of students be considered in the work of this department? In what ways?

EMMA W. SHRIEVES.

II. In what way may the most effective work be done in developing the student's power to carry on physical training in his own school, under conditions which would exist in that school?

FRANCES MUSSELMAN.

III. To what extent is the director of physical training responsible for the health of pupils coming under her direction?

NINA A. PAGE.

IV. a. Should the work in physical training for the boys differ from that for the girls in a Normal school?

b. If so, why, and how?

c. If not, why not?

SUSANNE A. LOOK.

WEDNESDAY, 2 P. M.

Section Meeting.

TEACHERS OF PROFESSIONAL SUBJECTS.

J. Q. EMERY, Leader.

I. To what extent should the model school be the correlating center of the Normal school?

I. C. MCNEILL.

Discussion opened by D. McGregor.

II. a. What are the purposes of the work in observation?

b. How should the work be organized so as to accomplish these purposes?

c. Value of observation after a period of practice teaching compared with its value before any experience in teaching.

ALICE H. SHULTES.

Discussion opened by A. J. Hutton.

III. To what extent may students in Normal school classes do teaching in their own classes with profit to themselves and without greater loss than gain to the classes?

J. T. LIVINGSTON.

WEDNESDAY, 2 P. M.

Section Meeting.

SCIENCE, INCLUDING GEOGRAPHY.

A. A. UPHAM, Leader.

I. Purpose, scope, and plan of work in each of the following subjects:—

1. Geology,

E. C. CASE.

2. Geography,

FRANK E. MITCHELL.

3. Elements of Agriculture,

A. A. UPHAM.

Persons assigned for the work above are requested to send to the Conductor of the institute, by December 10, ten type-written carbon copies of the matter formulated. These copies will be promptly distributed among the science teachers, so that opportunity may be given for examination of the matter, and for preparation of suggestions and criticisms to be presented at the second meeting of the section.

II. Possibility and desirability of field work in biology, geology, and geography. Character of work. J. A. MERRILL.

THURSDAY, 9 A. M.

General Meeting.

I. Possible elimination of some so-called strictly professional work now done in the Normal schools.

A. H. SAGE.

II. Exposition of the lesson plan idea, as applied to the treatment of a topic.

C. E. PATZER.

III. The relative proportions of oral and written work which should be required of Normal school students, which practice teachers should require of their pupils. L. D. HARVEY.

THURSDAY, 2 P. M.

Section Meeting.

PRESIDENTS AND BOARD OF REGENTS.

A. E. THOMPSON, Leader.

I. Administration.

a. What administrative work must the president keep in his own hands?

b. What may be entrusted to his clerk and to members of his faculty?
c. Modes of organizing administrative work most effectively and with greatest economy of time and effort.

R. H. HALSEY.

II. Supervision.
a. What time is necessary for the supervision of class work of members of the faculty in the Normal school?
b. How can this supervision be done so as to secure the most intelligent judgment as to merits and defects of teachers; as to unity of ideals and effort in professional work?
c. What means should be employed to remedy these defects and to secure unity of action where it is lacking?

ALBERT SALISBURY.

III. Faculty meetings.
a. How can these meetings be made most beneficial to the school?
b. How often should they be held?

T. B. PRAY.

THURSDAY, 2 P. M.

Section Meeting.

ENGLISH.

ALBERT HARDY, Leader.

I. Place and relative importance of oral and of written work in developing the power of easy, forceful, and accurate expression, either written or oral.

LILLIAN G. KIMBALL.

II. Rhetoricals: Training in use of English; training in expression. How made most effective.

ROBERT RIENOW.

III. In what way may the work in English be most effectively supplemented by teachers in other departments?

ALBERT HARDY.

IV. Discussion of topics proposed by members of the section.

THURSDAY, 2 P. M.

Section Meeting.

GEOGRAPHY.

F. E. MITCHELL, Leader.

I. Purposes and scope of the work in geography in the Normal school.

J. A. MERRILL.

Discussion opened by Cornelia E. Rogers.

II. Application of fundamental propositions 1, 2, 3, and 4, in the teaching of geography.

FRANK E. MITCHELL.

III. How far may the study of geography texts be supplemented by outside reading—
a. In the Normal school?

b. In the common schools?
c. In what way can this work be organized?

ALICE DE REIMER.

Discussion opened by Isabella Pretlow.

IV. Examination and explanation of illustrative material.

THURSDAY, 2 P. M.

Section Meeting.

HISTORY, POLITICAL ECONOMY AND CIVICS.

A. J. HUTTON, Leader.

I. Use of the fundamental propositions 1, 2, 3, and 4, in teaching history.

GRACE DARLING MADDEN.

Discussion opened by Geo. C. Shutts.

II. Scope and purposes of work in civil government in the Normal school.

A. H. SANFORD.

Discussion opened by J. F. Sims.

III. Should teachers of history in Normal schools train students to properly organize a history topic for teaching purposes? If so, how may it be done best?

E. W. WALKER.

Discussion opened by J. A. Wilgus.

IV. Purpose in teaching political economy in a Normal school. How may it be taught so as to develop the power of the student in teaching other subjects?

F. R. CLOW.

Discussion opened by W. H. Cheever.

THURSDAY, 2 P. M.

Section Meeting.

LATIN AND GERMAN.

J. W. LIVINGSTON, Leader.

I. What knowledge of German grammar should students in German be required to master?

B. M. DRESDEN.

II. Should any attempt be made to acquire a speaking knowledge of German? If so, under what conditions and to what extent?

CLARA SCHUSTER.

III. In the study of Latin, may the reading of an English translation of a Latin author, before the study of the Latin author begins, be of value?

C. W. SMITH.

IV. In what way may the work in both Latin and German be made to contribute most to the student's command of English?

W. S. WATSON.

V. Can the work in Latin and German be so organized in the Normal school classes as to give full scope to individual capacity, preparation, and opportunity?

If so, what modifications of present plans of class work would be necessary? PAULINE WEIS.

VI. Such portions of general program for section work as time permits.

THURSDAY, 2 P. M.

Section Meeting.

LITERATURE INCLUDING LIBRARY.

H. A. ADRAIN, Leader.

I. What should be done in the Normal school to make teachers acquainted with the literature of the public school libraries—with methods of using this literature in the public schools?
ELLEN F. P. PEAKE.

Discussion opened by C. A. Scott.

II. a. Should the work in literature in the Normal schools aim to develop the reading habit and a love for good literature, as well as a method of studying and teaching literature?

b. If so, what effect will this requirement have upon the plan and method of work in literature adopted by the teacher of that subject in the Normal school?
ALBERT HARDY.

Discussion opened by Anna M. Cottrell.

III. Library reading; its place in the Normal school; its relation to the regular work in literature; to the work in other branches. Its place in the model school; plan of organization and administration. FANNIE J. HOLCOMBE.

Discussion opened by Colin A. Scott.

THURSDAY, 2 P. M.

Section Meeting.

MODEL SCHOOL TEACHERS.

NINA VANDEWALKER, Leader.

I. Bearing of the fundamental propositions 1, 2, 3, and 4, in determining what work, if any, now being done, may and should be eliminated.
C. E. PATZER.

II. Model teaching for observation classes; what means should be used to make this of most value to observers.
ALFARETTA HASKELL.

III. Means necessary to overcome the bad effects of poor teaching in the grades by pupil teachers.
J. I. JEGI.

IV. How should the character of the teaching in the grammar grades differ from that in the primary and intermediate grades?
MYRTLE L. CARPENTER.

V. Uses of literature and history in the grades in developing the power to use good English orally.
HARRIET P. BURY.

VI. Explanation and examination of special devices and illustrative material.

THURSDAY, 2 P. M.

Section Meeting.

TEACHERS OF PROFESSIONAL SUBJECTS.

J. Q. EMERY, Leader.

I. How to secure unity of ideals and purposes in professional teaching and training.
   a. In any one Normal school.
   b. In the system of Normal schools.

ALBERT SALISBURY.

Discussion opened by W. J. Brier.

II. Professional reviews.
   a. Scope.
   b. How far academic?
   c. How far and in what manner professional?

T. B. PRAY.

Discussion opened by Chas. McKenny.

THURSDAY, 2 P. M.

Section Meeting.

SCIENCE.

A. A. UPHAM, Leader.

I. a. Value of oral exposition in developing teaching power of the student; such exposition to be without apparatus, and of experiments previously performed.
   b. To what extent may oral exposition and blackboard illustration take the place of experimental work with apparatus in the science teaching, keeping in mind the purpose of developing general teaching power?

L. D. HARVEY.

II. a. Possibility of and modes of correlating related scientific knowledge in the teaching of any of the sciences.
   b. Value of the "lesson plan" in the work of correlation in science teaching in view of the fact that propositions 1, 2, and 3 applied, determine what is necessary and what must be mastered by the pupil in the light of his present knowledge of that which is essential.

I. N. MITCHELL.

III. Danger of undertaking advanced work in science not within the proper scope and purpose of a Normal school course.

A. L. EWING.

IV. Relation of laboratory and text-book work in different subjects.

E. C. PERISHO.

FRIDAY, 9 A. M.

General Meeting.

II. Reports from leaders of sections of conclusions reached in the seework in the model school.

H. A. ADRIAN.

II. Reports from leaders of sections of conclusions reached in the section meetings.

III. Unfinished discussion.

FRIDAY, 2 P. M.

General Meeting.

I. Answers to questions.

II. General discussion of questions previously proposed by members of the institute.

PART I.

GENERAL SESSIONS.

GENERAL SESSION.

MONDAY, Dec. 17, 1900.

Forenoon.

Conductor Harvey: I am very glad indeed to see that the Normal school teachers are on hand as usual. We are here for a week's work together, for our mutual improvement, and as we are ready for work, I shall introduce Regent Emery, who will state briefly the conditions which, in the judgment of the Board, have made this institute desirable.

STATEMENT OF CONDITIONS THAT INFLUENCED THE BOARD OF REGENTS OF NORMAL SCHOOLS TO MAKE PROVISION FOR THIS INSTITUTE.

J. Q. EMERY, Albion.

It is not because the conditions in our state Normal schools are *poor* and need to be made *good* that this institute for the Normal school faculties has been ordered by the Board of Regents of Normal schools; but because the conditions now *good* should be made *better*. Indeed, I may truthfully say that in general the conditions are excellent; but they should be made more excellent. They who do not advance, recede. The great and far-reaching trusts committed to our care as well as the spirit of the times in which we live, demand earnest and unremitting efforts to secure progress.

With the year 1895 there began a great expansion in all the material equipment of our Normal schools. This includes buildings with their up-to-date heating and ventilating plants, apparatus, laboratories and libraries, cabinets and gymnasiums. More important still, this expansion has extended to the faculties, adding numbers and advanced qualifications in response to enlarged means of payment. These years have wrought almost a revolution in the increased numbers and improved qulifications of the student body. By the latter I mean the great numbers of high school graduates who are now availing themselves of the opportunities for training afforded by the Normal schools. Several hundred more persons have been graduated from our Normal schools, all courses, since January, 1895, than were graduated in all the previous history of the schools.

These changed and improved conditions logically call for corresponding changes and improvements in the scholastic and professional training given by the schools under our charge. There should be a conscious, strong and persistent effort to administer all the varied inter-

ests of these schools with the greatest possible degree of efficiency and true economy. When I say true economy, I do no mean parsimonious expenditure in either money or effort; for it may be the truest economy to make large expenditure of both.

The Board of Regents, through the efforts of its proper committees and otherwise, has noted certain conditions which it has come to feel can be made better; and this institute has been provided in the belief and with the expectation that these conditions will, as a result, be improved.

The Board adopts a course of study applicable to all the schools. Each president adjusts this course to the apparent needs of his school. He interprets the aim and scope and determines the plan of work in the various branches in this course.

Inspection of these schools has brought to notice the apparent fact that too great a divergence in some of these lines of work has grown up in the system. To be more specific: The course of study includes *observation* as a part of the required professional work. Yet in no two schools can it be said that observation stands for the same thing in aim, scope, or plan. Professional reviews in the common school branches are required by the course of study. Yet in aim, scope, and plan of work, professional reviews vary from *methods* in one school on the one hand, to simply *academic* work in another school, at the other extreme.

What is here said of these two topics is true in a greater or less degree of many, if not all of the topics of the course. Such conditions should be, can be, and will be improved.

Probably the greatest defect in American Normal schools is in the correlation or lack of correlation of the work of the so-called academic teachers with that of the professional work and the work of the training school. Observation of the conditions in this respect in our Wisconsin Normal schools leads to the belief that there is opportunity here for great improvement that should not go unused. It is hoped and expected that noticeable improvement along this line will be one result of this institute.

The work of separate teachers or departments should not be independent and unrelated but should be interdependent and co-related, the work of each supplementing and re-enforcing the work of all. This makes the proper sequence of work, especially in professional lines, a matter of much importance in a Normal school. It is believed that the organization, in some of our schools, of the professional work is not such as to make it most effective in results and economic of students' and teachers' time and energies.

There are other conditions of less importance that should and will be improved in the natural course of evolution and to the improving of which this meeting will largely contribute.

This institute is called solely in the interests of progress. In this spirit the Board has invited you here and now bids you a hearty welcome to participation in the work that is before us.

Mr. Harvey—Before taking up the first topic on the program, I wish to say a few words in addition to what has been said by Regent Emery pertinent to the purposes of this institute.

In the printed statement sent you last week, prepared by President McGregor, there was a brief statement at the close, of the purposes of the institute. I do not think I can improve upon that statement and I shall not attempt to, but I want to call the attention of all present, again and again during this week, to those purposes as there stated.

If this system of Normal schools is a system of professional schools, then it is essential that professional work shall be done in these schools, and that whatever professional work it is possible to do at any point to supplement what may be called the strictly professional work, needs to be done in a professional school, if the true purpose for which that school is in existence is carried out. If that be not done, then there is no excuse for the existence of a Normal school. If it does not vary from any other good school, then any other good school may take its place. But, if it has a higher function, a different function, if in addition to teaching pupils and teaching subjects and developing character (the function of any school) there is still another, a specific, purpose,—that of persistently making an effort to train those in attendance to teach, there we find reason for the existence of a separate class of schools—of Normal schools. And as Regent Emery has well said, it is the purpose of this institute to see whether it is possible to come to a still higher plane in this respect than we are upon to-day, and I want to restate what he has stated, that this institute is called, not because the work is poor in the schools, but, as he has well said, that it may be made still better. And the central thought of this week's work,—the unification and organization of the professional work of the schools,—is the central problem in every Normal school in this country. If you talk with Normal school men from the Atlantic to the Pacific, they will tell you that that is the central problem in their life. We are not going to say to them (although we do claim that we have the best system of Normal schools in the United States) that we have entirely solved that problem. But we are here this week for the purpose of seeing whether we can not make a step forward in its solution.

We are not here for the purpose of enabling the Board of Regents to size up the teachers. I have heard that was the reason. That is not so. It is not the place to do it. If that were the purpose, you should be complimented, because as they look into your faces today here on dress parade and on your good behavior, there can be but one conclusion.

The purpose is not simply to disorganize and revolutionize the work that is being done well in the schools. It is not for any such purpose. It is simply to confer together, to afford an opportunity never before offered in the state of Wisconsin, for a body of people engaged in exactly the same kind of work, one hundred and sixty of them, in the most important work which anyone is doing in any field of educational activity,—the training of teachers,—to get together and to spend a week's time in conference with each other, outside of the regular sessions and in discussion in the sessions, upon the work you are doing.

As a teacher in this Normal school for seven years and in another for some years, I felt, as I know my associate teachers did, how great a

benefit it would be if we could get out and touch hands with others who were engaged in the same work that we were; if we could sit down together, not simply for half an hour, but for two or three days, and talk over the problems which perplexed us. We have never before had an opportunity to do it, and I think that one of the most important things in connection with this work is the opportunity to meet socially and talk over in an informal way the work and the problems which are presenting themselves to each of us in our own particular line of work.

I believe that, as an outcome of this week's conference, we shall go back to our work with a refreshed spirit. I am very sure that many of us will feel better with ourselves, for we shall have talked with other people and found out that they are not doing so very much better than we are. There is a great comfort in that. I am very sure that, even tho' we may not recognize it, unconsciously there will be some modification of our own views and some enlargement of our field of view. I hope that will come. We are not here for the purpose of having anybody, or any class of people, or any number of people, attempt to impose any particular fad upon us. We are here for a larger purpose than that, and that is to see if we can not get at something that is fundamental in some of our lines of work, something that we can agree about, if possible, or if not, have good reasons in our own mind for not agreeing. The next best thing to an agreement is a disagreement with good reasons. To disagree as a matter of habit is natural, but it is not healthful. To disagree for the sake of disagreeing is natural for some people, but it is uncomfortable for others and not very healthful to the individual. So that, if we do not reach agreements here in the different fields, we shall discover some reason for it perhaps.

I trust that out of it will come a clearer reason for each of us as to why we are doing as we are; why it is better perhaps than someone else is doing. You see that will result in the case of every individual, in the careful examination of the ground work of his philosophy and his practice, and that is a pretty good thing to do occasionally. It is wonderfully helpful to do that. It brings out some startling things sometimes when we go down to the fundamental basis upon which we are working and discover perhaps that we have slipped off and did not know it. It sometimes happens.

So this week we shall try to discuss these problems in the spirit I have indicated, not in the spirit of destruction, demoralization, or revolution, but simply in the spirit of helpfulness, of improvement, of advancement. I hope that out of this week's work will come something that will go on. We are not going to settle all the problems this week. There will be three or four left over, and it is possible that we shall not settle any of them, but I nope that we shall at least make a start on some and gather sufficient impetus so that when we go back to our schools and take up our individual work, we shall go on in an effort as individuals, and as faculties in united effort, to work out these problems upon a broad basis and have good results.

With this preliminary statement, I want to take up the second topic upon the program, and I am going to do what I do not like to do and very seldom do in an institute. I am going to read a paper this morning, and I will tell you why I am going to read it. I am going to read

it because I want to say exactly what is in it and if I do not read it, I may perhaps say something else. I have tried to boil down what I had to say, and I want to say it exactly as it is written.

FUNDAMENTAL PROPOSITIONS.

L. D. HARVEY, State Superintendent.

(Copyrighted.)

The following four propositions are fundamental for the teacher and for the pupil in the determination of what is to be done for and in the recitation:

I. The teacher must have in mind a definite purpose or purposes to be realized in the next recitation.

II. The teacher must have in mind the things which must be known or done in order that the purposes may be realized.

III. The teacher must determine what of the things falling under proposition II. the pupil now knows or can do.

IV. The teacher must determine what of the things enumerated under proposition II. the pupil still has to learn or to do, and the order in which they should be known or done.

Is the statement that the foregoing propositions are fundamental a correct one?

This question will now be answered.

The teacher has always to determine with any given class for any given recitation:

1st. What is to be done by the pupils? What by himself?

2d. How shall what he has to do in testing, teaching, drilling and assigning work for preparation be done?

In short—

1. What is to be done at any given time?
2. How is it to be done?

The teacher's work is testing, teaching, drilling and assigning new work for pupils.

The pupil's work before the recitation is, preparation of work assigned; in the recitation is (a) showing the quality and extent of his preparation through expression in one form or another; (b) supplementing inadequate preparation by further work under the direction and inspiration of the teacher through teaching and drilling; (c) preparation for the next lesson.

A fundamental is an essential.

It is essential that the *what* shall be determined for and in every recitation, with every class of pupils, in every subject.

Today's recitation determines what has been done by the pupils in preparation, what more is to be done for and by them during the recitation, including the determination of what they are to do for tomorrow's recitation.

The *what* precedes the *how*.

The *what* must be determined with reference to its value for the pupil

at a given time, under conditions then existing. The proper determination of the *what* in any given case demands correct answers to the following three questions:

1st. What in the given subject is the pupil to learn, and what is he to do in the application of what is learned as a necessary part of his training?

2nd. What is he prepared for?

3rd. What of that which he is prepared for and which he is to learn or to do, does he need next?

That the teacher shall be *able* to answer, and that he *shall* answer these questions correctly, is a fundamental condition of any good teaching. If this statement is correct, then the fundamental character of the four propositions is demonstrated, because the answers to these questions are determined by the application of those propositions.

I take it no one will question the fundamental character of the first proposition, viz.: The teacher must have in mind a definite purpose or purposes to be realized in the next recitation.

The demands made upon the teacher by that proposition can not be met except through the answer to the first question above. That is: "What in the given subject has he to learn and what is he to do in the application of what is learned, as a necessary part of his training?"

Neither can it be answered without a consideration of propositions II. and III., as applied to his preceding work.

The second question above, viz.: "What is the pupil prepared for?" can be determined in no other way than through the requirements of the second and third of the four propositions. That is to say, unless the teacher knows what are the elements that go to make up this knowledge which the pupil is to master, and unless he has determined what the pupil now knows, he can never answer that second question, "What is the pupil prepared for?" There is no other way to get at it. No matter whether you have ever heard of these propositions or not, you are doing it if you determine what the pupil is prepared for.

The third question above, viz.: "What of that which he is prepared for and which he is to learn or to do does he need next?" is determined through the application of the fourth proposition.

These four propositions are fundamental because there is no other possible way by which the three questions above enumerated can be correctly answered. Omit what is demanded by any one of the four propositions and at once uncertainty, doubt, and confusion arise. A teacher may never have heard of these propositions and may work wisely in the determination of what is to be done for and in a recitation; but to the extent to which he has worked wisely, he has unconsciously been applying these propositions; to the extent that he has consciously applied these propositions, he is conscious that these determinations have been worked out in a logical manner, and his conclusions at every step tested.

Let us examine a little more fully the reasons upon which the first proposition is based.

If the teacher is to assign a lesson for preparation by the pupils, there must be in his mind a definite purpose or purposes to be realized by the pupils in their preparation and shown in the recitation. Unless there be such a definite purpose in the mind of the teacher, he has no

means of knowing whether the work assigned bears a proper relation to the work which has gone before and the work which is to come after; neither does he know whether the work assigned is adapted to the present needs and mental condition of the members of the class; neither does he know whether the work assigned is too much or too little to fully employ the time at the pupil's command for this specific piece of work. If the teacher has no definite purpose in mind in the assignment of his lesson, then the assignment will, of necessity, be vague and indefinite, and the pupil will have nothing before him definitely indicating what he is to learn or to do. The result will be that the next recitation will be largely a failure, primarily because of the teacher's lack of definite purpose.

In determining the aim in each day's lesson, the teacher must keep in mind the question already stated, "What in the given subject is the pupil to learn and what is he to do in the application of what is learned, as a necessary part of his training?" This must be thought out in advance; must be clear to the mind of the teacher. Unless it is clear to the teacher, there can be no definiteness of purpose for any given recitation that will be properly related to the work of the preceding recitations and the work which is to follow.

The purposes from day to day must always be formed in the light of the subject matter and what part it is to play in the training of the child. They must also take into consideration the answer to the second question above stated: "What is he prepared for?" Otherwise, the lesson is assigned without any consideration of the pupil's ability to make the preparation demanded.

One of the most common errors on the part of teachers is to thus assign work without any definiteness of aim. So many pages, so many problems, so many experiments, are assigned for the next day's work. Too often this is done without any thought as to whether the work of today has been mastered by the pupils or not, and that even, when the successful preparation of tomorrow's work depends upon the mastery of today's work. In a little time the pupil is hopelessly lost, discouraged, and unable to make any intellectual growth in this given line of work. I appeal to the experience of those present if this is not a matter of common occurrence in almost every grade of school; if it is not even a matter of somewhat frequent occurrence in the Normal schools, and often in still higher schools. Each teacher can test for himself his attitude upon this matter by formulating clearly and concisely the purposes he has in mind for any given recitation. The very fact that it is not an easy thing to do will convince him that it has not already been done, and that too often he is simply considering the amount of material rather than the amount of mental activity required to master it and whether the pupil is prepared to exert the required mental activity.

I wish to call attention to the fact that, not only is definiteness of purpose essential to the proper assignment of a lesson, but that, whenever in any given recitation the teacher finds it necessary to do some teaching, there must again be the same definiteness of purpose as in the preceding case; that, in his testing of pupils, there must be a definite aim toward which every question or requirement should be directed; that in drill work the same necessity exists for definiteness of purpose, determined primarily by the needs of the pupils as shown in the recitation.

A recitation may frequently disclose a condition as to lack of knowledge or lack of power or of skill which may make it necessary then and there to formulate a new purpose not anticipated, which must be accomplished under the teacher's direction during that particular recitation. There should be no variation from the purpose which decided the assignment of the lesson on the day previous, unless it appears that some lack on the part of the pupil, not anticipated by the teacher, renders it necessary to formulate new lines of work and master those before the work originally assigned can be mastered.

Considering the second proposition—"The teacher must have in mind the things which must be known or done in order that the purpose may be realized," let us note that the purposes which a teacher may have in mind may be concerned with two aspects of learning; one, the acquisition of knowledge; the other, the acquisition of skill through doing. Is it essential that, with a given purpose in mind, and that purpose being the mastery of certain definite facts and their relations, or the determination of relations from given facts, thus exercising the reason and paving the way for the formation of judgments, that the teacher shall know definitely what preliminary knowledge is essential to the pupil for the accomplishment of the task in hand, and what are the essential elements which go to make up the new body of knowledge which the pupil is to master?

Let me ask the same question with reference to a task which demands something to be done, it may be in the way of graphic presentation. Is it essential that the teacher shall know what elements of knowledge and skill must be possessed by any individual in order that he may be prepared to enter upon the work in hand; and, further, is it essential that the teacher shall make an analysis to determine the elements of knowledge and skill required for the performance of a definite task?

It would seem that to ask these questions is to answer them. No one can successfully deny that it is a necessity for the teacher to know what essential, related body of knowledge must be mastered to reach any given end; what essential, related body of knowledge and corelated forms of activity are essential to the intelligent doing of any given piece of work demanding skill. Without this knowledge, the teacher abdicates his position as a leader, as a teacher. An essential element may be left out by the pupil and, because it is left out, he is powerless to perform the task assigned him. The teacher may blame the pupil; may tell him that he has not studied; may undertake to explain; but, except by happy accident, he fails to hit upon the point of weakness and to bring up before the pupil facts for his mastery that essential element which was lacking. In all such cases there is a waste of time and energy on the part of both teacher and pupil, a loss of interest by the pupil and on the teacher's part, a lack of appreciation of what is essential for the proper discharge of his duties.

It is frequently assumed that every teacher meets the requirements indicated in the second proposition. Is this a fair assumption?

The teacher may test that question for himself or herself by undertaking to formulate definitely what must be known or done in order to achieve the mastery of any given piece of work. Submit this formulation to your own critical examination. Submit it to others for their judgment and criticism and I feel confident that the result will be something of a surprise to those who have never undertaken to do it.

Is there still a further reason for this work?

It has been said that a part of the teacher's work in the recitation is to test the pupil's preparation. Shall the tests be confined within the range of what it is essential for the pupil to know, in order that the purpose for which the lesson was assigned may be accomplished? If so, how can they be kept within that range unless the teacher has definitely in mind what is demanded by the second proposition?

Much of the purposeless and illogical questioning in the class room grows out of the fact that the teacher does not have in mind what are the essentials for the pupil in the mastery of the lesson. Without this knowledge on the teacher's part, the questioning is purposeless, often unnecessary, and always confusing. With it, the question is clearer, more definite, and in its proper place. One great reason why so many teachers are poor questioners is because there is this lack of definiteness in their minds as to what is necessary knowledge for the pupil, and therefore as to what it is proper for the teacher to question him upon.

Taking up the third proposition, is it possible for a teacher to assign a lesson with proper reference to the needs and conditions of the pupil unless he has met the requirements there stated, viz.: to "determine what of the things the pupil must know or do he now knows or can do"?

If it be assumed that everything in the work assigned is unknown, and it should develop that most of it is old to the pupil, then too little work has been assigned. If it be assumed that most of it is known, or that the pupil is already able to do most of what he is asked to do, and it should develop that neither assumption is correct, then too much work is assigned. In either case the result cannot fail to be bad for the pupil.

Lack of application of this proposition is the cause of more failures in recitation than any other one failure on the teacher's part. Every teacher will bear me out in the statement that the pupil frequently fails to do what the teacher wants him to do because he, the pupil, assumes that he can already do it and, therefore, needs no further preparation or practice; fails to know what the teacher expected him to know because he assumes that he already does know, when his knowledge is vague, inaccurate, and incomplete.

It is not only essential for the teacher to know what the pupil is to prepare upon and what preparation he should make, but it is far more essential that the pupil shall know exactly wherein his knowledge is to be strengthened because it is now indefinite and incomplete; wherein his skill is to be developed because it is now inadequate.

To illustrate:—Certain definitions are assigned to be mastered. They may not be entirely new to the pupil. He has gone over the ground before. He assumes that he knows them, and so comes to the recitation with the same vagueness and inaccuracy that he had before. Had the requirements of the third proposition been met by the teacher before the assignment of the lesson, it would have made clear to the pupil just where he was lacking in accuracy and completeness, and would have put before him a definite piece of work to be mastered for the next recitation

I have again and again heard this: "Be prepared to pronounce cor-

rectly every word in the reading lesson." Do you suppose the pupils were prepared? Not at all. There were perhaps half a dozen new words in the lesson, but because those new words were not indicated, the pupil assumed that because he could pronounce most of them, he could pronounce the rest. When asked why he was not prepared, he answered, "I thought I knew it."

One of the essentials for a student is that he shall early learn how to study wisely. There is no way of mastering the art of study except through study. And there is no better way, I believe, of teaching this art, than by presenting to the pupil definitely and clearly just what he is to do and in the order in which it is to be done. The third proposition, if applied, will secure exactly this result.

It is to be understood, of course, that a teacher who is dealing with the same class from day to day on a continuous and related line of work, will know at any given time quite clearly what, of the things which must be known or done, the pupil now knows or can now do. It is equally clear that in preparing for the assignment of a lesson it is unnecessary to go over ground which he has already traversed in preceding recitations and to test pupils when he already knows that they can meet the tests. It is equally true that, in almost every recitation, in the preparation for the assignment of the next lesson, some additional tests as to the status of the pupil's knowledge of the new matter should be made.

The application of the third proposition determines for the teacher what of tne things determined by applying the second proposition the pupil has yet to know or to do, and the fourth prpoposition simply demands that the order in which these things are to be known or done, if the order is essential, shall be made clear.

I have thus shown what seems to me to be the fundamental nature of these four propositions and the necessity for applying them in the assignment of work for any given recitation.

It will be evident that with any unit of knowledge the first and second propositions may be applied and worked out fully throughout the entire unit.

The third proposition cannot be applied strictly except in the presence of the class and from day to day.

The same is true of the fourth.

But whenever a given unit has been worked out a little thought will show, that as the work progresses from day to day with this particular unit, each of the propositions becomes applicable again so far as the day's work is concerned. The aim for each day will be a portion of the larger and more complete aims for the whole unit.

The application of the second proposition for each day's work on the unit will consist in a determination of what portion of the formulation of the entire unit is essential for the day's work.

The application of the third proposition will be concerned with testing on what the second proposition showed to be essential.

The application of the fourth proposition is clear.

A little consideration will make clear how far these propositions are applicable in each of the three phases of the teacher's work in the recitation,—teaching, testing and drilling. The moment he begins to test, that moment the necessity for what is called for in the second

proposition is evident. Otherwise his testing is purposeless, as has been shown. The moment that testing has shown him that it is necessary to teach during that recitation period, that moment the application of the first, second and fourth propositions becomes a necessity for him. The moment his testing has developed that drill work is necessary, that moment he has applied the first proposition, for, in determining the necessity for it, he must, if it has been determined wisely, do so in the light of a definite purpose. That purpose is made clear by the application of the second proposition; while every stage of the drill work is also an application of the third proposition.

It will be observed that these propositions have to do with the "what" of the recitation. The "how" is not a consideration at the present time. I am firmly of the opinion that if due care and attention be given to the "what," very many questions as to "how" will become unimportant or answer themselves. The very analysis required of the teacher in this determination of the "what" will give him such an insight into the nature of learning and of teaching as to materially strengthen his method of the "how."

I have sometimes heard the fear expressed that if teachers are required to deal in the manner indicated with the subject matter of each recitation and, especially, if they are required to put in definite form on paper the requirements of the several propositions, it will become a piece of formalism and result in more harm than good. I wish to state here, once for all, that the writing out of the lesson plan is no essential part of the plan itself. It is merely a device, but a most valuable one, to compel teachers to do the work necessary to be done, and to put it into such form as will make it possible for them to criticise their own work and to submit it for the criticism of others in the interests of better preparation.

This definite formulation and putting into permanent form of what is demanded by these propositions, if continued sufficiently long, will develop skill through close attention and clear analysis. The purpose of this work is to develop a habit of mind, so that the teacher will unconsciously do the thing which ought to be done. The freedom which some people fear will be abridged by this process is the freedom of lawlessness, of carelessness, of indifference, of ignorance and of irresponsibility. The freedom that is desired is the freedom that comes through the reign of law, and in this case it is pedagogical freedom through the reign of pedagogic law.

Skill in any art is not acquired by accident. Skill in the art of all arts, that of training the human mind, can only be acquired by careful study, continued experiment and pains-taking examination of methods and results.

In beginning the mastery of any art it is essential to see what is to be done. It is essential that the first efforts toward doing the required thing shall be made with the greatest care. This means laborious, painful work, and often then, meagre results. But continued, persistent, intelligent practice finally develops the skill which gives that which is so much prized,—freedom of action. The skill is the resultant of mental and perhaps physical habits.

It is the purpose of this work to develop a habit of thought and when that has been developed, the necessity for the written formulations no

longer exists. It will be well, however, for the teacher even then to occasionally give himself the practice and the test of writing out what is called for in these propositions. The same reason for this exists as in the case of the skillful pianist who delights thousands at the evening recital and spends hours the next day in practicing the scales.

If I am right in assuming, and it is an assumption proved, that all good teaching must take cognizance of what is required in these propositions, then the demand that they shall be applied is not a fad, nor a piece of formalism or of mechanical organization of matter. Whatever merit these propositions have lies in the fact that they compel the doing of the things which must be done, in such a way that the doer is conscious of what he is undertaking, and also in such a way that the person responsible for having it done will know that it is done.

DISCUSSION.

Mr. Harvey—We will now take a little time for the discussion of the paper just presented, and I should like to hold the discussion reasonably close to the question—"Are the propositions submitted fundamental?"

Mr. Salisbury—Those in this body who have attended the school for institute conductors during the last two years are probably familiar with the line of thought presented this morning. It is the first time that I have heard the presentation of Mr. Harvey, therefore I may be pardoned for a few questions of an elementary sort. In the first place, what definition, Mr. Chairman, are you putting upon the term "recitation"? Do you mean all school exercises? Or do you mean only those involving the acquisition of knowledge? Can they be made to apply in a class exercise in drawing?

Mr. Harvey—These propositions are applicable, as I understand it, wherever and whenever any definite piece of work is to be assigned for the pupils' preparation, whether it be in the acquisition of knowledge or in the acquisition of skill through doing. They apply also in all cases where no work is assigned by the teacher for preparation by the pupils in advance of the recitation, but where the teacher plans to present the matter and to have pupils master it during the class period. In the latter case they would apply to the teacher's preparation and the application of the third proposition would be, not for the purpose of making an assignment, but for the purpose of determining for himself what he must teach, and the application of the fourth proposition would determine for him the order in which it is to be taught.

I am glad you mention a specific case. The answer to that will answer all other similar questions. Has the teacher any purpose in the exercise in drawing? If so, then that teacher ought to know it definitely and ought to be able, if asked, to formulate that purpose. In order to realize that purpose, is there anything that the individual pupils must know or do in order to work that out and accomplish it? If so, the teacher ought to know that, and he ought further to know what of those things those pupils can now do, in order to direct them in the further doing.

Mr. Salisbury—Does it involve a new or distinct formulation in the drawing exercise for each day's work?

Mr. Harvey—It is possible that there may be practically the same aim or purpose continued from day to day and whenever the purpose is the same, then no new formulation becomes necessary, but whenever a new purpose develops, then a formulation becomes necessary.

Mr. Pray—If I understand the matter rightly, it would depend upon the degree of definiteness with which that purpose is stated by the teacher in the beginning. I mean the purpose in the exercise,—whether it will be the same from day to day in most cases will depend upon the definiteness with which the purpose is stated in the beginning.

Mr. Harvey—Yes,—if you will notice in my statement of the application of those propositions—perhaps some particular phase of work in drawing, and that whole unit had been worked out so definitely and fully that there would be no other formulation. If only worked out in the rough, in bold strokes (I believe you say that) then there would be a need to work it out in detail.

Mr. Salisbury—In the discussion of an assignment, should we have in mind our own subjects, psychology perhaps, or should we have in mind the children that our pupils are going to teach?

Mr. Harvey—You should have in mind the class you are teaching. I see no reason why in teaching psychology there should be a violation of every principle of psychology, or why in teaching pedagogy there should be at every stage a violation of the very precepts that are being taught; and so I say that for our purpose here, what I should like to have in the discussion of these propositions is for each to consider them with reference to his own particular work in teaching.

Mr. Salisbury—How far may our test to find out what the pupil already knows be delusive? Are not pupils often more able to answer than their response to our testing would indicate? Can we make any test that would be very reliable for determining what they are able to do? Have you not to go on trying to see what they can do, after all?

Mr. Harvey—I think that if you had had an opportunity to go over the paper as read, you would see that I have anticipated that, in that I say that in every recitation there will come a time when the test will show that the pupil is not prepared and that probably indicates that your test the day before did not do just what you anticipated, and that then and there comes the necessity for the teaching in order to supplement the preparation made in advance, by work in the class.

Now, to answer your specific question more definitely, I will say that the testing is not positively an assurance of definite knowledge on the teacher's part; that it may avail to disclose the pupil's capacity to go on; that it may give the teacher an estimate of his knowledge that is not warranted by subsequent developments. Both of these things may happen, but the alternative is this: "Shall I, because I am not able to do all I would do by testing, do nothing?"

Mr. Salisbury—Is there not here too strong an assumption that the only legitimate result of the recitation is the mastery of a certain preconceived unit or amount of knowledge? Is not stimulation to elicit the impromptu in the class a legitimate aim as well?

Mr. Harvey—I think it may seem, and doubtless does seem, to those who have given it little thought, open to that objection. Now I am not

going to object to that, except, as I have stated in the paper, that it comes in line with the purpose that the teacher had in mind, or directly growing out of it, because, if we once yield to that and assume that anything which may be brought in to stimulate is a good thing, at once the whole work of the recitation becomes chaos. I think what we need is to hold closely to a line of work, but I am in hearty sympathy with the idea of stimulation, and if you will notice I have used the words "guidance and inspiration by the teacher in that teaching." Some of the best work of the recitation comes out as an incident, and the training that the teacher gets in this close analysis of his work results in the power which enables him to see those salient points and the opportunities for just that work.

Mr. Hardy—There is one question which I want to ask. Is it not sometimes well for the pupil to determine what must be known or done to reach a certain aim? Is it well for the teacher always to determine for the pupil what is to be known or done? He should see the logical relations and connections between the aim and what must be done to gain that aim.

Mr. Harvey—I want to answer in this way: We are training teachers who are to do this work for themselves, for their own classes; but I take it that the best way to do it is for the teachers themselves in the Normal school, in their own classes, to exemplify this process and make clear the order of progression in doing it for the pupil, so that definiteness and clearness and proper relation between the parts may exist in the pupil's mind, and that by this exercise there will be developed a power which will enable the pupil the better to do this for himself.

I would answer specifically that we should hope, before the end of the Normal school course is reached, that the student would have developed this power. And now the question comes—How early may that be developed? There are several people here who can give you some information on that. There are several people here who began doing this work two years ago for the first time, some of whom have been teaching a long time, and I think that if they were to be heard from they would say that they did not find it an easy thing to do, and that they thought they had been doing this, and when they really did undertake it definitely and closely, they found that there had been a vagueness and incompleteness in their former work.

I have tested, as a number of people here have, thousands of teachers in this state, and I have put them to the test of their capacity to do just the thing that Prof. Hardy suggests, that of determining exactly what the pupil knows, and I have even found people who had been teaching for a number of years who were not able to do this rightly. Shall we undertake to do it for our classes and develop that habit in those pupils and then exercise them in the doing of it? I should have specific exercises for these Normal school students in doing exactly what I am asking here.

Mr. Emery—And apply those principles in the doing of it.

Mr. Hutton—I am glad that question was asked and answered. Am I right in this, that when we have trained our pupils so that they may themselves determine the purpose and these other fundamentals here, we are not even then relieved from the necessity of doing it?

FUNDAMENTAL QUESTIONS.

TO WHAT EXTENT, WHERE, AND FOR WHAT PURPOSES SHOULD THE FOREGOING FUNDAMENTALS BE APPLIED IN NORMAL SCHOOL WORK?

L. D. HARVEY, State Superintendent.

(Copyrighted.)

If what I have stated thus far is correct this question answers itself. If in the Normal school anything is learned or done for and in the recitation by the students and because of the teacher, then if that which is so learned or done is what ought to be learned or done, and if it is so learned or done when it should be, and in the order it should be, then these fundamentals must be applied at every step in determining *what* shall be so learned or done and the *order* of the learning or doing.

If in the Normal school many things are learned or done which it is unnecessary to learn or do, or if not learned or done at the proper time or in the proper order, then it is because these fundamentals are ignored or not skillfully applied.

If teachers are trained in applying these fundamentals until they have become skillful in so doing, then by their application of them they become able to determine whether they are teaching or requiring students to learn many things which are unnecessary, or out of place when taught or learned, and so able to secure the necessary results in less time, with less work by both teacher and student. They also present better ideals of correct teaching to the student, and in so much as what he is required to learn or do is essential and better organized and related, he is better trained and therefore is better prepared to train others. I know that my own experience as a teacher in the Normal school and as an institute conductor, in consciously applying these fundamentals has resulted in the elimination of much which I had been requiring, in the better organization and arrangement of what was required as a result of their application, with greater clearness of thought and comprehension of subject matter by the students, and a considerable saving of time for them and for myself. It has also resulted in all I have been claiming in the way of better ideals, standards, and training. I know further, that as I have observed the conscious and skillful application of these fundamentals by others, either in the school or in the institute, similar results have followed from their efforts in this direction. I know further, that as I have observed unskillful work by teachers and institute conductors, resulting in confusion of thought, in lack of definiteness in effort or results, in waste of time and loss of interest, it has resulted much more frequently from a lack of skilled effort in applying these fundamentals in the daily determination of what the students were to learn or to do, than from a lack of skill in the method of the "how."

A teacher may show skill in the way he does a piece of work because his method of the "how" may be good and still the work may be a complete waste of time because it is not worth doing, or is done at a time when it bears no proper relation to other things done, and so has little lasting value. One of the most just criticisms upon our modern

teaching is that so much is taught that is not worth the teaching, and so much time is wasted upon things which the pupil already knows or can do, and so much more time is wasted in trying to have pupils master what they are not prepared at the time to master.

I believe that the application of these fundamentals will remove the cause for these criticisms. I think I appreciate as clearly as any one that there are other things of importance in teaching besides these four propositions. I make no claims for them which imply an ignoring of the other important facts in skillful teaching, but I believe that for the Normal school teacher, as well as for every other teacher who would master the art of teaching, it is essential for success that he shall master first the fundamentals of his art, and if these are fundamentals then we can not too strongly insist that they shall be understood and applied.

While as I have said, this is true of the Normal teacher as of every other teacher, it must be said, further, that it is of more importance to his success than to any other teacher, because he is not only teaching subjects, but he is teaching and training his students to teach others, which is an added demand. He is not simply teaching others to teach the subjects he is teaching them, to others like themselves, but he is teaching them to teach other subjects to others *unlike* themselves in attainments, capacity, and interests. A student who becomes a teacher unconsciously absorbs much of the method of his teacher and either consciously or unconsciously attempts to apply it in his teaching. He too often fails to recognize that his teacher's method was adapted to the needs of students altogether different in maturity and power from his pupils.

The Normal school teacher must of necessity do such work as will give his students a grip on the fundamentals in teaching in such a way that they can apply them to the needs of their pupils instead of becoming thoughtless imitators.

We can not attempt to deal with every phase of the art of teaching during this week, and in determining what phases should be considered I have thought it wise to focus attention closely at the very outset upon the fundamentals. To paraphrase a profound truth uttered centuries ago,—

Seek ye first the fundamentals in the art of teaching, and all other things shall be added.

TO WHAT EXTENT DO THESE FUNDAMENTALS FURNISH A UNIFYING BASIS FOR THE PROFESSIONAL WORK IN THE NORMAL SCHOOLS?

If they are fundamental, the recognition of their character, and their application by all teachers in the Normal schools will put the entire work of the schools upon a common basis. No sounder basis for professional work can be found than this, because it is fundamental.

It affords an opportunity for students to see in every recitation, under every teacher one common basis of work, one common standing ground. They see how these propositions are applied by different teachers to different subjects in different classes, until it becomes a matter of course to them. They see that here at least the work in the

strictly professional classes is re-inforced by every other teacher, no matter what he is teaching. The strictly professional work is then seen to have some force outside of the particular class in which it is done. As it is now, much of the work that is so carefully and laboriously done in the strictly professional classes is never heard of or thought of outside these classes. In a professional school where the sole purpose is to train teachers there can be no justification of such a condition. Every teacher should do something more than teach well if he is to teach in a professional school where the purpose is to train teachers. If he do nothing more, he should do *nothing* in the professional school. His place is in another kind of school.

What more shall he do? I take it that this is what should be done by every teacher who is teaching what may be called the non-professional subjects. He should show in his own work a recognition on his part of normal processes in teaching, based upon normal processes in thinking. Not only should he show that in his work, but he should take occasion to make his pupils see that that is what he is doing, so that they shall become conscious of the fact that what was taught in the pedagogy class, or the psychology class, or in the practice teaching, is practiced by the teacher, so far as the fundamentals go, in every department of the Normal school. So that when a student comes from a professional class to a class in any other subject, he shall find something there to deepen the impression made of the work in that professional class, to re-inforce that impression, to help the supervisor of practice and the critic teacher when they undertake to get these pupils to do work on sound pedagogic bases. If that is left out, it seems to me we are leaving out an important phase of the work which should be done in every Normal school by every teacher.

And I want to say further, that I believe the best professional work that it is possible to do in a Normal school is the work done in the academic classes under these conditions, because there theory and practice go hand in hand. Theory is tested by practice at that moment, and practice is judged by theory. Put the theory in the northeast corner, in room 40, for the first ten weeks, and it hardly ever gets out of that room tne other thirty weeks, and I appeal to the people who are responsible for the practice teaching if this is not true, if they do not feel that there should be more re-inforcement for the work they are doing in every department of the school.

Now, if what I have been saying this morning in my discussion as to whether these four propositions are fundamental, is true, then it seems to me that these fundamentals ought to be recognized and practiced by every teacher in the Normal school. As I said before, the work, so far as these fundamentals are concerned, should be upon a common basis. Take plans that are prepared for the practice work not upon some fundamental basis (and excellent plans may be prepared) and tell me where the student ever finds, as he goes from room to room and from teacher to teacher, anything in the plans of the teachers under whom he is working today that has any relation or any likeness to the plan which he made out last night to submit to the practice teacher. Answer me this,—whether it is not true that the students, as they go out from the strictly professional classes to other classes fail to find such a re-inforcement of the professional work as is

desirable, unless some common fundamental basis for work in all classes has been adopted and is used. The teacher may have been doing good teaching, but does this question come to the mind of the student?—"I wonder what have been the mental processes of my teacher as he planned this recitation. I wonder whether they have any relation to my mental processes in planning for my practice class under the direction of the supervisor of practice." I believe that when these student teachers come to face this proposition—"What am I to do for this class tomorrow?" if it is made clear in the field of science, of literature, of English, in the languages, in mathematics,—in every department of the Normal school work,—that there are certain fundamentals, just as applicable in one case as in another, the close application of them, involving critical analysis of the work of the teachers, will insure better results in the student's work.

I believe that if this is done so that the student will see that in arithmetic, in grammar, in literature, in geometry, in music, in drawing, in German and in Latin, there is a common basis in the preparation of what is to be taught and what is to be assigned, and if he sees it worked out in this subject by this teacher today, and by another teacher in another subject tomorrow, etc., from day to day and week to week there comes a re-inforcement from every side that helps him in his work of planning for his practice class and in the carrying out of that plan.

Now, if that is true, there is at least one common basis that we may work upon, and there may be others. As I said before, we do not expect to solve all the problems this week.

I have already indicated that one of the purposes of the Normal school is to train pupils to study. I want to go over that again briefly.

If your experience is like mine (covering thirteen years of Normal school work) you have discovered that one of the greatest needs of your pupils is a knowledge of good methods of study. They have to be trained to study to get the best results, and if we acquire an art by the practice of it, and if for economical and effective practice we need to know the necessary steps and their order, then it seems to me that this kind of work with the pupils puts in place of vagueness and indefiniteness (which must exist without it), definiteness, accuracy and clear thinking upon the part of the pupils, and that you can thus get the training which is needed to develop in them a mastery of the art of study.

We have volumes written on the training of the apperceptive. It is an important topic. We all know what it means. But I want to call your attention to this fact, that it is a great deal more important to get a pupil to apperceive than it is to talk to him about what apperception is. I have read a great many books on apperception, but I have never yet read one which gave me the slightest suggestion as to how I could go to work to determine definitely whether the pupils had the necessary apperceptive mass to do the work; and, secondly, if they did not have it, how I was to go to work to see that they did have it.

Proposition II demands that you shall determine for yourself in every case what is the apperceptive material absolutely necessary for the reaching of a given end.

I want to call your attention to a second fact,—that the third prop-

osition, that is: "What of the things which must be known or done does the pupil now know or can he now do?" applied successfully determines definitely and accurately what the apperceptive mass of the pupil now is and what further apperceptive material he has yet to acquire. So then these propositions become, if applied, a basis for unified, definite work in this field of apperception.

Tell me, if you will, any better way, any other way, by which it is possible to determine what is necessary in the preparation of the pupil for the mastery of his lesson.

On practice teaching I have already said something, but I want to say a little more.

If in the planning of the work, which I take it is required in all Normal schools, the student in the practice class shall be trained thus to organize what he has to teach, with his particular class in a particular subject under given conditions, then you have as a basis for the planning something that is absolutely fundamental. There are other ways of planning, but note this—if you have a basis that is fundamental and therefore necessary, and if in addition to requiring the work of the practice teachers, the planning for the recitation in every department of the Normal school by every teacher is put upon this basis, then every recitation becomes a definite aid to that pupil who is undertaking to plan and organize his work definitely for his practice teaching. If, in the recitations conducted by the regular teachers in what we call the academic subjects in the Normal school, the teacher puts before his students the plan of work which he has been pursuing and which he purposes to pursue through the coming week; shows them what were his mental processes, what the order of procedure in his mind in the organization of his work for that recitation, is it not clear that there would be a re-inforcement of the work which the supervisor of practice is requiring of the pupils? If that be done in another and another and another class, will there not come out of it for these students before they leave the Normal school that which I have said was the purpose of the work,—a habit of thought that will give them a fundamental basis upon which to build in a logical and related manner?

The teachers outside of the professional classes are apt to have no interest in what the professional teachers are doing. They say, "I do not teach that. That is not my business. My business is something else." I take it that this is a misconception of the Normal school teacher's business. If he were teaching in a college or in a high school or university that might be true. But here he is teaching as a member of a Normal school faculty, whose united purpose is to train teachers. If in addition to teaching his special subject he can so bring in these fundamentals and give his students practice in applying them and an opportunity to criticize the teacher's modes of applying them, these students secure a mastery of these fundamentals which I do not believe can be gotten in any other way. I have seen the results of this kind of work. I have seen students in the first year of the Normal school under this régime arranging more systematic, more logical lesson plans than I have seen students in the middle of the senior year doing, where this plan was not followed. This was because they had been having this work in every department of the school and there came to be such a re-inforcement from every point that the habit of thought came to be developed which resulted in correct practice.

As I said at the outset, what we want first is the development of a habit of thought so that we shall unconsciously do this work. Mark this: While we may be unconsciously doing these things, and many teachers are and every teacher should be, that is not enough in a Normal school. They must be brought into the consciousness of these students somewhere else than in room B in the northeast corner of the building and at some other time than in the first, second or third quarter; until they come to see that what is being done by the teacher is or is not in accordance with what is fundamentally correct; until they come to have skill in the preparation of their own work and in the application of these fundamentals.

HOW CAN THE ACQUISITION OF THESE FUNDAMENTALS BE SECURED?

If what I have been saying is correct, if it be true that every teacher of an academic subject has a duty to perform from a professional standpoint (and if it is not true we ought to know it, and if it is true we ought to accept it), then the next question is, "What shall we do in order that this duty may be performed?"

The first thing to be done is to have every teacher in the Normal school, from the president to the kindergartner, plan his work in the recitation upon these fundamentals. At the outset, each teacher should take some one subject, not everything at once, and begin formulating what is demanded in propositions I, II, and III. In III, what he may assume from his knowledge of the class, and then in his class the testing to find if his assumptions were correct, and from that testing reach the conclusions called for in proposition IV.

The principal of a high school said to me the other day: "I would like to know whether it is necessary to have my teachers write out under these propositions everything that is asked for from day to day, and whether it is necessary to do it with every subject they are teaching, or whether all that is necessary is to have it in their minds, and if that is all that is necessary, how shall I find out whether it is in their minds?" I thought that was a very pertinent question. Now, keep in mind what I said to you. The writing is no essential part of the plan. It is simply a process of training,—merely a device for training. Let the teacher take just one subject and work out his plans on that until he has acquired some skill in doing it; until he can do it easily. It will not be easy at first. Then let him take another subject where the material is different,—requiring a different body of thought,—different organization. Let him work on that until he has acquired skill in organizing his lesson plan. When that is acquired, it is not necessary to write out plans in detail daily.

Now, you may say to me, as others have said—"I have always done that." Some others have said—"I thought I had done it, but I find out that I have not." Some others said that they had done it, and I found on observing their work in the recitation that they had not.

I have examined hundreds of plans written by the best teachers in the State of Wisconsin outside of the Normal schools,—one hundred and eighty this spring and one hundred and twenty last spring, persons in attendance at the institute conductors' schools, and I have talked with high school principals, city superintendents, teachers in

Normal schools and elsewhere. I know what they said this work did for them and their experience confirms my experience, observation, and judgment as to the value of this plan of work. When the Normal school teacher has acquired some skill in planning work for his recitations in accordance with these fundamentals, I would have him plan a week's work in advance in a subject, and then at some time during the week, take such a portion of a recitation period as might be necessary to put before his class his week's plan, and to explain his mode of procedure in making it. He should invite the criticism of the class upon the plan as presented, and should answer inquiries as to points not understood.

Some of the best work I have seen done in the Normal schools was the criticism of the teacher's plan by the pupils in his class. They criticised good-naturedly and in a pleasant way and each was helping the other.

I would put every practice teacher upon this basis in planning his work so far as determining *what* is to be done. Then the work which he is planning today interests him in the plan of the teacher of arithmetic, of geography, of history, or of literature, as he goes from room to room and meets those teachers. He is looking to his academic teachers to get some help in his professional work. And if these teachers are doing this work skillfully, he is not looking in vain. He does not get merely an imitative process of work adapted to mature minds, which he attempts to impose upon the immature second and third grade pupils.

In further answer to the question as to how to make these fundamentals a basis for unifying the professional work, I would say this work must be supervised. The plans prepared by the teachers in the Normal school should be submitted to some one or more persons skillful in determining whether they have been properly made. I know from experience that one who has had practice and has skill in this will be able to render very effective assistance to others.

Unless the work is carefully supervised, especially at the outset, you will get what some fear,—mere formalism; you fail to get a definite statement of aim; a proper formulation of what is essential, what must be known; you fail to get a proper test to determine what has yet to be known or done. But with suggestions and careful and kindly criticism and guidance, skill is developed and the value of the work is realized.

Before beginning practice teaching, students should receive training in making lesson plans. This training should be begun before the regular work in observation is undertaken, so that students in observing work in the model school may have an intelligent view of the plan arranged by the teacher whose work is being observed. The earlier in the course students come to understand this mode of preparing plans for work the better, for then they will be better able to understand the plans of the teachers of academic subjects.

Let me recur to the first question, namely:—

"To what extent do these fundamentals form a unifying basis for the professional work in the Normal school?"

They furnish a unifying basis so far as the determination of what is to be taught in any given subject by any teacher is concerned, and no further. That is all I claim. As I said to you at the outset, the

"what" comes before the "how." This is fundamentally essential, and if we can make the fundamental a unifying basis, it seems to me we have started right. Some time later on we may be able to take up the large question of the "how," and find some unifying basis there upon which we can work. What would be the result? I have already indicated what I think would be the result. I believe we should get a better professional spirit in the school. There would be such a re-inforcement of the professional work now done as we have never yet seen,—a re-inforcement that would come from every teacher of academic subjects and would bring them in closer touch with the professional side of their work. These are the results that I wish to see. I think that we should see the students developing a power which they do not always now have,—a power to organize on a fundamental basis that which they are to do with their pupils.

I want to say to you that all over Wisconsin, in the high schools and elsewhere, there are scores of teachers doing this kind of work; there are boards looking for teachers and superintendents looking for teachers who can do this kind of work. I can name a dozen cities in this state where the work is upon just this basis. I can name a dozen counties in this state where the county superintendents are undertaking to have this work done and are getting it done by the teachers in the district schools. I have had sent to me scores of the plans which these district school teachers have made. For two years we have put the entire institute work of the state upon this basis so far as the determination of the "what" is concerned. If we can go on with this work in the Normal schools, the result will be a better unification of the work in our educational system from one end of the state to the other.

I want to express the hope that if there is any one here who takes exception to these propositions and to the discussion which has been going on this morning, he will here and now make known that objection and his reasons for it.

DISCUSSION.

Mr. Lynch—I do not wish to enter into any disagreement, but I would like to ask a question or two in order to have one or two things brought out.

The second proposition deals only with the logical phase of the subject matter; that it is not merely what the pupil must know or the teacher must know in order to present the aim, but it is what anyone must know. It seems to me that the purpose of the text-book is largely to do that, to present the subject in logical order, and I would like to ask the Superintendent of what value he considers the text-book being used under proposition II.

Mr. Harvey—I would like to answer that question by asking another. Do you consider the logical order of any importance?

Mr. Lynch—Certainly.

Mr. Harvey—Do you consider that the use of the text-book secures the desired result under existing conditions?

Mr. Lynch—I do not know that I do. I do not know that I can answer that question.

Mr. Harvey—That must be answered.

Mr. Lynch—I should think it would depend upon the way the text-book was used.

Mr. Harvey—I am with you there.

Mr. Salisbury—A good deal on the way the text-book is made.

Mr. Harvey—I want to answer your question as fairly as I can. It seems to me that my second question brings out the salient point, and if so and as a result of a good many years of observation, I have reached the conclusion that the use of the text-book does not do all that ought to be done. That while, perhaps, for a person who can understand the text-book and who does understand it, the logical order or development may be clear, for the pupil who does not understand it, who has not mastered it, there is a very wide divergence as to conditions. This plan of procedure, as I understand it, and I have experimented a little, is the best possible way of using the text-book to get just what you have in mind.

Mr. Lynch—I do not know that I fully understand one point brought out. Should the lesson plan as made out by the teacher be given to the students in the class in the Normal school in advance, or should they first be required to attempt a plan of their own in the professional review class, for illustration, and then have their plans criticized by every member of the class and by the teacher, resulting in the end in a plan of what the teacher would have given them in the first place?

Mr. Harvey—I think it is a good plan to get at it in both ways. Say to the pupil: "I want you to make a plan now, and this is what I want." The student makes it and it is a total failure. Then say to the pupil: "I will put into your hands a plan," and the fact of his failure, perhaps, has aroused his interest and he makes an effort to master it.

Mr. Shutts—Would it be possible to have the pupil make out a plan unless it be upon a review subject? This plan must fit into the entire unit. The pupil can not know the whole unit.

Mr. Harvey—May not the practice teacher make a plan?

Mr. Lynch—He may in the professional review class, where they are supposed to know the subject matter pretty well.

Mr. Sims—The teacher's plan in the purely academic subjects would be evident to the pupils from the very start in the Normal school.

Mr. Harvey—How do you know that?

Mr. Sims—I put that as a question. Should the pupil know from the start, under these four propositions, in the purely academic subjects?

Mr. Harvey—I think so.

Mr. Sims—For instance, in the first term of geometry or the first term of history, should that plan be evident to the pupils?

Mr. Harvey—Most assuredly. That is practice work. That is the professional side of the work, and it is exemplified not only in his work but by calling the attention of the students to the plan. We go into the observation class and see a piece of work and in order to judge of it wisely, we must know the purpose of that work. And these students in criticizing that work do so in the light of the pedagogical precedents they have had. They are doing exactly the same thing in the academic classes. Every recitation becomes an observation class for improvement along certain lines.

Mr. Adrian—I understand this applies to the practice teacher and also to the student in doing the professional review work. Will it apply to a student in the pursuit of a new subject?

Mr. Harvey—What do you mean?

Mr. Adrian—I mean this: Can the student make out a plan for himself for the lesson for tomorrow in new work?

Mr. Harvey—Not until he has mastered the work for tomorrow.

Mr. Adrian—Then we understand, do we, that these plans apply first to the practice teachers, and second to the professional review students, and not to the mass of students?

Mr. Harvey—My purpose would be to have the work in making these plans apply first to the president of the institution; second, to every other teacher in the institution, and before any such work were done in the classes, to see that the teachers had mastered their lessons.

I would train the practice teachers, I would train the people in the professional classes, in pedagogy, in theory and art of teaching, or whatever it may be, to make lesson plans on subjects that they knew, simply for experiment work and practice in plan making. I would require the practice teachers to make their plans for their work on this basis.

Mr. Perisho—Then it does not apply to the student in the pursuit of a new subject?

Mr. Harvey—No, sir. He cannot do it.

Mr. Young—I wish to ask one further question: If this plan is to be placed before the students as a teaching outline, does it not more than half digest his food for him?

Mr. Harvey—My observation has been that it does exactly the contrary. It puts definiteness and conciseness in the place of vagueness, inaccuracy and incompleteness.

We fool ourselves by thinking that we are developing power when we leave a thing for people to do for themselves and they do not do it. The fact of leaving it to them does not develop power. The power comes in doing and in doing thoroughly; so I would train the students at the outset to do this work and do it well.

If you have traveled as I have over the state of Wisconsin for a number of years and have seen the work in the institutes, you have found that the lack of power on the part of the teachers who are in these institutes is the power of putting anything definitely and clearly, and you people who have to deal with students in the Normal school know as well as I do, that there is the same condition there. You know that of the people who come from the high schools not one in ten can give you half a dozen rules from beginning to end,—a straight, clear statement,—and it is because of this vagueness and indefiniteness that has been allowed by the teacher,—encouraged by the teacher perhaps.

We shall have to stop. I believe in always closing promptly. I shall be very glad to have this discussion followed for a little time this afternoon, if it is desired.

MONDAY AFTERNOON.

Conductor Harvey—Some suggestions and questions which have come to me since adjournment this morning have led me to think that it will be well to devote a portion of the afternoon to a further discussion of this morning's topic. A few questions have been handed in, and I shall be glad to have you formulate more and drop them into the box here at our first recess, and we will take time to discuss these questions and any others that may be presented.

I want to urge upon those here to use the utmost freedom in asking questions, in stating what seem to you to be objections, or difficulties in the plan. Some things that occur to one of you may occur to a dozen others, and if the matter is brought up and discussed, the discussion will make clear or modify the views already presented. We are here for the purpose of free discussion, and I hope you will avail yourselves of the opportunity.

I want to say, in apology perhaps, that a question asked by Professor Perisho was not understood by myself, and my answer did not answer his question. I understood him to ask whether or not a teacher could have his pupils prepare a plan for the new recitation,—that which he had not had. In a talk with him later, he told me I was in error. Professor Perisho had this in mind: In the organization of a review lesson, it may be where the advance is indicated, is it a wise thing to ask pupils, so far as possible, to formulate what is to be known in order that that piece of knowledge may be mastered? Most assuredly yes. That is simply an application of just what I was discussing this morning,—training the pupil to do the very thing as a pupil which he must do as a teacher. There is no question as to its value. In the attempt to do that with a new lesson there is just one limitation to be put upon it,—unless the content of that lesson is in the pupil's mind, it is of course impossible for him to formulate what is to be known. Just so far as that is there he may formulate, but beyond it he can not go. In a review, he has that in his mind which will enable him to do this very thing, and it is one of the most valuable exercises possible. It is the very thing he has to do when he attempts to plan his first lesson for practice teaching.

The Recitation.

Taking up the subject of the recitation this afternoon, it is not my purpose to take very much of your time, but to give you opportunity to discuss the subject and present your views. After we have disposed of this subject, then we will take further time for the discussion of this morning's topic.

WHAT SHOULD BE DEMANDED OF THE PUPIL IN THE RECITATION?

(Copyrighted.)

I shall have to apologize here, I think, for not having prepared as definitely and as clearly as I would like to have done, the answers to these questions. It has simply been a physical impossibility to get

time to do it. So I may be somewhat rambling in what I have to say, but perhaps it will serve to open the discussion.

There are two or three points that I have jotted down.

First, the concentration of attention upon the subject in hand. That should be demanded of the pupil in the recitation. That is a fundamental condition for getting anything out of the recitation or understanding what is treated in the recitation, for the correction of false or erroneous impressions in the recitation, and for the reaching of definite and correct conclusions in the recitation. Now, this is one of the things which cause very little trouble in the Normal school, but the students who are training to become teachers find it a very serious problem when they begin teaching, and one reason why I have put this topic upon the program is that it seems to me that something definite ought to be done in the training of those students, to the end that they shall have power in concentrating the attention of pupils under them. One may say: "If your pupils are interested, they will concentrate their attention;" but what often grows out of that is that the recitation is made the place to interest students, not in the subject matter necessarily, not to accomplish a definite thing, but just to be interesting. Anything that is interesting will concentrate attention. A story or a dozen stories will interest; an organ and a monkey will interest; any number of things will interest, and you and I have seen recitations where there was no other apparent purpose than to entertain, nothing definite done toward a given end because of this effort to interest and so command attention.

It seems to me that what ought to be in the teacher's mind in this effort to command attention is definiteness of purpose in what he expects to get out of the recitation first, and then a definite plan of work in his own mind toward the realization of that purpose and a reasonably close adherence to that plan. Now, if that purpose is clear in his mind, if he has set something for his pupils to do in which he believes, and has made clear to his pupils what they are to do, then he has the conditions for attention; the effort to arouse interest should always be within the field of the purpose, not outside of it. To lug in inconsequential, immaterial and irrelevant things just to arouse interest is utterly inexcusable. The teacher needs to develop the power shaping that work as to demand something of them.
of interesting his pupils in the work to be done, and that means so

And this leads to the second point which I have here. "There should be demanded of the pupils a high order of mental activity throughout the entire recitation." You and I have seen recitations in which the major part of the class were exercising no mental activity. They were simply in a passive, quiescent state,—not a wave of trouble passed over their peaceful brows. They were thinking nothing about what was going on. They cared nothing about what was going on. Now while that is not ordinarily true of the students in the Normal school, is it not true in the schools which they go out to teach often times? If your youthful experiences were like mine, and I suspect that we had about the same experiences, you will recall that many a time in the recitation you sat there in a passive state, oblivious of what was going on. Your thoughts were wool gathering. There might have been a line of mental activity, but it was not directed to the end sought.

If that is one of the difficulties in the recitation which your students are going to meet, then it becomes an essential, it seems to me, to call their attention to it, not only in the professional class, but in every other class.

Suppose you have a set of pupils who go to school simply because they have to go to school, and whose highest ambition is to get out of the recitation with the least possible trouble. What will you do there? How are you to organize your work so as to command the attention and give the largest opportunity for work by the greatest number? The teacher who makes the demand upon the pupil must say something more than "pay attention." "I want you to think now." There comes the question "How shall I secure and hold the attention of the class to the work in hand?" That is one of the questions which it seems to me can be very well discussed incidentally by every teacher in the Normal school, and that the discussion will be helpful I know.

Third—"The student shall give evidence of careful preparation of work, such preparation to be shown through expression." This is only another way of stating that you are going to ask the pupil to recite. But how can the pupil give evidence of preparation through expression if at every moment he is interrupted by the teacher and his line of thought broken up, and he gets to thinking about something else? It seems to me that if I am going to demand of him that he shall show the quality of his preparation through expression in one form or another; it may be written, by a drawing upon the blackboard, or it may be oral, I must give him an opportunity to meet that demand. I must let him understand in advance that that is expected of him and nothing short of that, and that he will have his chance when he comes to the recitation.

Mr. Rockwood—Beg pardon for saying that for the nearly six years that I have been visiting the recitations conducted by the teachers sitting here, the most universal fault I have observed lies right there. They seemed to have assigned a lesson and required the students to come to the recitation with due preparation, but they did not then give the students a fair chance to show what they had done and what they could do, without interruption.

Mr. Harvey—Did you see my paper?

Mr. Rockwood—I say that emphatically, because I have felt it so keenly for five years.

Mr. Harvey—It is suspiciously like the next thing I have written here: "The expression should be accurate, complete, definite and uninterrupted."

I want to modify that a little. I do not expect that the pupil, when he stands up to recite, will do any one of those things perfectly. But that is what he is to aim at. That is not what we are going to get. But we are going to come nearer to getting it if we demand it and insist upon it and make it possible for him to do it, than we shall if we do not demand it, do not insist upon it, and make it impossible for him to do it.

There are places where the expression should be accurate. You assign a student a clause in the Constitution to be learned and recited. Will any recitation serve which is not accurate? If it is a statement of a mathematical problem, it must be accurate or nothing. If inaccurate it is good for nothing. If it is possible to have an accurate statement

made and learned, and if that has been assigned as a part of the preparation, then an accurate and complete statement should be demanded, should it not? And it ought to be insisted upon, not simply for these students themselves in their preparation, while that would be ample reason, but for a larger reason than that,—for the establishment of ideals and standards of what they are to do in making demands upon their pupils. The statement will not be accurate perhaps when the preparation involves judgment on the part of the pupil; it may not be complete; it may not be definite because of the newness of the subject. It is the business of the recitation to make it definite and to make it complete. But so far as the pupil is concerned, he has a right to make his statement, such as it is, without interruption, without being switched off the track again and again. Let him make his statement and then see whether that statement is correct and complete, see wherein he has failed, and subsequently, if possible (and it ought generally to be possible) get a full, complete and accurate statement from him.

"Whatever definite work the pupil has been asked to prepare, that he should be held responsible for."

If preparation has not been made as requested, the pupil should be required to give his reasons for his failure:

I know some students in a higher institution than a Normal school who sometimes "flunk," as they call it. And I have sometimes asked them, "Did the teacher ask you the question as to why you had not prepared, whether you had any good reason why you had not prepared the lesson?" "Oh, no, he never asks such questions, but I was busy." "I was out last night." "I was reading an interesting book." Let that go on and what is the attitude of the student? Why, it is that he is not expected to be responsible in the recitation for the work assigned; that he may or may not do it as he pleases. That may be entirely proper in that kind of an institution. It may be entirely proper to say to those people: "Do just as you please. The responsibility rests upon you. The results of it will come back upon you."

But I take it that in the Normal school and on down, there is a responsibility a little larger than that upon the teacher. The students are younger and they need to have their ideals a little better in hand. They need to have standards made a little more clear and pretty firmly established. I submit to you that that is one of the great lessons in life to teach. When these people go out from the school, no matter what they do, when they come into the activities of society in any form whatever, they find the necessity of doing what ought to be done: that their position in the business world, or in the professional world, depends upon the reputation they have for doing the thing they ought to do and when it ought to be done. And the same thing is true as to the necessity of making accurate statements, definite statements. I am a great sufferer in my lack of ability to make a definite statement. I have realized it more fully the last two weeks than ever before in my life, and I will tell you how, confidentially,—by the questions that have come back to me from you people as to what was meant and what was required and what was asked for. Why, I never realized as clearly before how bad my training had been, how utterly I had failed in trying to make a thing clear. I want you to bear with me for that.

But take the lesson home to your students, and say to them that here is a man who has to confess with shame that his early training does not make it possible for him to put a statement so that people can understand it, and emphasize to them the fact that the best training they can get in the school is the training which will develop the power of making people understand.

I want to press one thing further, that this power of expressing definitely and clearly what is in the mind means the training also to develop power to understand what another means.

Now as to this matter of holding the pupil accountable for his failure. He may have a very excellent reason, and if he presents it, do not blame him. Simply accept it without question and try to make conditions possible so that his misfortune will not work an injury to him. Do not let the pupil feel that if it has been impossible for him to prepare his lessons because of conditions which he could not control, that he is to be blamed. It is unfortunate, but do not blame him. But if, on the other hand, his failure has been due to the fact that he did not use the opportunities which he had, make it clear to him that that is a serious failure and that it ought not to be repeated, much less become a habit.

We should demand of the pupil that he should know exactly what he is to prepare for the next recitation. It is the pupil's business to know what is demanded for tomorrow. It is the teacher's business to present it so that he can know what is to be prepared for tomorrow.

These are some of the demands. I do not mean that they are all, but they are some of the important demands which it seems to me should be made upon the pupil.

There is one other, and that was suggested this morning, I think, in a question, that there arises in the recitation a condition which necessitates going a little beyond the purpose, a little outside of it. This gives an excellent opportunity for thinking. The demand should be that the pupil shall do some thinking here, and if these other conditions of attention and opportunity are furnished, that thinking will follow.

WHAT SHOULD BE DEMANDED OF THE TEACHER?

First, I should say that the teacher should recognize that the recitation is to be made by the pupil and not by the teacher. If Prof. Rockwood is right in his statement, and he ought to know, there has possibly been some failure to recognize this; and if Professor Parker is right in the reports which he brings me weekly as the results of his observations in the high schools of the state it is one of the most common errors, perhaps one of the most serious errors that he observes. The teacher does the reciting. The teacher puts the answer in the form of a question or indicates by his inflection what the answer is to be. The pupil would get it right fifty per cent. of the time, if he were blind. Half of the time he would hit it without a bit of thinking. There is a large amount of that going on. There seems to be more of it than we are conscious of in our Normal schools. I know how easy it is to get into a habit of this kind. I know how delightful it is for the teacher who is master of his subject, to make it clear to his pupils by doing the

reciting. He wants to show them how clear it is to him, and how much he knows of it.

What is the result of that? The student very soon finds that he is not expected to do much. He at first puts an hour or two hours of preparation upon his recitation, and then finds he does not have a chance to talk at all. He cannot present what he has done. He cannot show that he has put thought and time upon it. Very soon he says, "What is the use? The teacher will give us all that in the recitation anyhow." There are times when that is what the teacher ought to do. Unquestionably there are times when that is the proper thing, but I submit that there ought to be times when the pupil should say something; when he should have the floor.

Now, my suggestions to you are: First, when next you go into your schoolrooms just have a look at yourselves. See whether you are doing most of the reciting or not. See whether you are giving the pupils a chance to do what they ought to do, and whether you are demanding of *them* that they shall do what *they* ought to do.

Second, and perhaps this is a restatement, the teacher should respect the rights of the pupil to show what he has done in preparation for the recitation; it should be put as a demand upon him, and if it be a demand, then he has a right to show what he has done, and the teacher can do no less in fairness than respect that right.

Third, in questioning to test, the teacher should confine himself to work assigned or to work previously done. I want to limit that. I do not want you to thing for a moment that I would not ask a question to test the pupil's knowledge of what lies beyond. But when I am dealing with the subject matter of the recitation, with the questioning to test, the questioning should be upon what the pupil has been asked to prepare. And you will see now how important it is that the second proposition which we discussed this morning shall have been worked out in the teacher's mind, "What things must he know or do to reach this end?" That guides and directs the teacher in his questioning. One of the best exercises I ever had in the art of questioning was many years ago when before the recitation I formulated upon paper the questions I proposed to ask during the recitation, arranging them in logical order when a logical relation existed. I frequently discovered in the recitation that the answer obtained to the first question necessitated leaving all the others unasked until I had again questioned the pupil and brought him to the point where my second question was the proper one; or perhaps it disclosed the fact that a new line of questioning was necessary. That was the most excellent training I ever had in the art of questioning, because, though I did not use a single question after the first, the practice which I had in framing that set of questions in logical order enabled me the better in the presence of a new set of conditions and an unexpected answer, to frame the question which ought to be asked next and which had to be asked next; and again and again as I did that and looked at my questions, I made the discovery that I was asking for something which I had no right to ask for, something which did not lie in the content of that lesson and which was not related to it, and so that question was stricken out. And that kind of training is what it seems to me we need, to get ourselves into a critical attitude toward our own questioning. As I have listened to questions in the high schools of the state, I believe I am

entirely within the mark when I say that three fourths of the questions for testing are utterly useless. They are worse than useless. They are confusing. If they have any effect at all, they lead the pupil away from the thing that he ought to be going toward.

And so this questioning to test should be kept sharply within proper lines, the lines which circumscribe the amount of work to be prepared. This, then, demands upon the part of the teacher careful preliminary preparation. Some teachers have mastered the art of questioning, and the question comes just as it ought to come, at the right time. The more one has studied over this matter, the more logically one's mind works and the better his form of question. But all the time he must keep in mind: What is the range within which the questions shall be put?

The questions should be clear, pointed and in logical order. The question designed to test the pupil should not be leading, irrelevant, or immaterial.

Now we sometimes put in a leading question when we are questioning to test, that is, when we think we are. The moment we do that we have changed from testing to teaching or suggesting, and here the leading question may have its place. It may be that we have discovered a weak place and that there is a necessity for teaching a little. But the teacher ought to practice in the discrimination of the two classes of questions; he ought to be able to so analyze his work that he will know for what purpose the question is being asked and whether or not it is the proper question to ask.

A leading question may be proper for certain purposes. An immaterial question has no place in the recitation. An irrelevant question has no place in the recitation.

Questioning to test precedes questioning to teach. Often times we find this order reversed, and the teachers do not know that they are so reversing it. I know a man who has taught in this state for thirty years and I have heard him in his recitations put question after question and the only answer was "Yes" or "No." Had these questions been recast in the form of statements, they would have made a complete recitation. And that man thought he was questioning his students to test their preparation. Was he? Most assuredly not. The students very quickly discovered that, and they used to pride themselves upon the skill with which they could tell by some inflection or some expression of the face whether the answer was to be "Yes" or "No." "We never have to do anything for his recitation. If we cut anything, we cut that." And that is just what happens when that kind of work is done.

HOW MAY THESE DEMANDS BE ENFORCED?

I know of no way of enforcing the demands made upon the teacher except by the teacher's seeing clearly what should be demanded and then seeing clearly what he must do to meet the demands. Propositions II and III apply there. It is a matter to be settled by each teacher for himself. We unconsciously get into certain habits in our modes of teaching and conducting our recitations, so that when our attention is called to them we are surprised.

So, I would suggest, that it is the business of every teacher to keep a strict watch and guard upon himself in these respects, to see whether he is doing what ought to be done, what his own intelligence tells him ought to be done. Ascertain what has been observed to be a failure by those qualified to judge, and then address himself to the correction of those shortcomings.

HOW MAY THESE DEMANDS MADE UPON THE PUPILS BE ENFORCED?

They may be enforced simply by the teacher's understanding clearly what the demands are, making them definite, and making the pupils understand them, and then persistently insisting that those demands shall be met. That is the only way that I can suggest.

MODES OF TESTING—CHARACTERISTICS OF A PROPER TEST.

Testing is simply one of the phases of a recitation and the question is one mode of testing. The putting of a certain thing to be done which requires the pupil to show his capacity or power, is another way. There are a variety of these ways, but the proper test is the one which is made with reference to what is expected to be known and what must be known and in view of the logical order in which what is to be known shall be stated, if there be a logical order.

Now, what constitutes a proper test? With some grades of pupils the oral test is the proper one, with some grades sometimes the oral and sometimes the written. I am a believer in the doctrine that it would be well if we made more of the oral test in our classes than we do make of it. That demands something more than a written test. That will strike you as a strange proposition, but the fact is that the writing which the pupil does is often a test rather of his ability to find things in the encyclopedia and dictionaries and get them together and put them on paper, than it is a test of his knowledge of the subject matter; and in any event, when the pupil can sit down leisurely and take his time to arrange what he knows, think it over and recast it, he is likely to do better work in the end than though he presents it orally; but if he has so prepared himself that he is able to make an oral presentation as clearly and in as orderly a manner as though he had written it at his leisure, that is certainly a higher order of attainment. I do not mean to discourage the written test. It has a very high value for certain definite purposes, for exactness, conciseness, and orderly arrangement, but we shall never teach people to talk by having them write eternally. They must do some talking. They should understand that in the school the preparation to talk needs to be made with the greatest care, and that means to talk it again and again until they feel they can do it. In the students' preparation for the recitation, how many of you have made the discovery that ninety-nine out of one hundred of your pupils never have tested themselves as to whether they have mastered the lesson so that they can present it. Try it and see. What will they do? They will read the lesson or study it, and they will say "I understand that." The pupil who looks through his geometry proposition says, "That is

all clear. I know that." And he gets up tomorrow and finds it a different proposition to state it so that other people will see it.

Now, if we shall get the pupils to feel that the recitation is not prepared until they have prepared themselves by practice and experiment to talk it and to talk it well, we have done a great thing, and we have prepared those pupils to meet this demand for a test in an oral presentation of what they have to say. And remember that in all their activities outside of the school room afterwards, ninety-nine per cent. of the demands made upon them are for prompt, accurate oral expression. So I should demand more of that in the school room.

PURPOSES OF DRILL EXERCISES, THE NECESSITY FOR, AND HOW DETERMINED.

I have already indicated this morning that which should guide the purposes of the drill exercise. Perhaps you may say that the sole purpose of a drill exercise is to develop skill. I think that that will cover it. We give exercises to quicken the perceptive powers. We give drill exercises to train the reasoning, for quick, sharp, prompt, decision. We give drill exercises to secure skill in the movements of the hand, in writing, drawing, constructive work of whatever kind. There must always be a definite purpose, and skill and readiness is the end in view.

The question comes for us as teachers: Is this thing of sufficient importance so that the drill necessary to develop skill will be worth the time and energy put upon it. Is not that a fair question? Have you not seen drill exercises that were carried on to an extent that made it doubtful in your minds whether the time and energy put upon the drill was met by the proper return? I think I have. And so the teacher must keep in mind. Is this skill an essential in the training of the individual? In his training for teaching, is there any necessity for drill which does not exist in his training as a student, not as a teacher? If so, what shall those things be? And if we examine closely and critically we shall find that the result of such an examination would eliminate quite a number of those drill exercises. It is the business of the teacher in the Normal school to make that clear. Will you tell me where the best place is to discuss that question? Is it for the teacher of pedagogy to discuss it, or the teacher of arithmetic in the arithmetic class, to say—"Tell me what I am doing this for." Prepare yourselves in advance for this, and sometimes when you have made this preparation you will conclude that it will not be best to try. Now, suppose you make it clear that this particular drill is given in this place for this particular purpose pedagogically. Will not that make an impression upon these students who are going out to teach that will help them the better to determine what are the conditions under which a drill is necessary in their classes? Will not that be of far more value than a theoretical discussion of the subject in a class in pedagogy which has long since been forgotten? in whatever class the drill becomes a necessity. Do you not see that at every point in the Normal school there should be discussed and exemplified the pedagogic purpose of a drill exercise when that drill exercise is given? If the teachers in the Normal school can get together and agree upon the conditions which control the selection of these drill exercises, then there is united ac-

tion and reinforcement at every point, and the pupil does not go out imitating the drill exercises he has seen his teacher give until he has settled this question: That was right for me there; but is it right for these pupils here?

Now, what are the essentials of a good drill exercise? When I have settled the question as to what the drill exercise is for and what particular kind of skill is to be developed, and when I have worked out, as I said this morning, every step in that exercise necessary for the development of the required skill (and until I have done that I have no business as a Normal school teacher to conduct a drill exercise), having previously determined what had to be done to develop this skill, and then when I have determined how my drill exercise shall be adjusted to meet these demands, I have settled the essentials of a good drill exercise. That, it seems to me, is the kind of an analysis which the Normal school teacher needs to make in order to determine the character of his drill exercise, having determined that drill is necessary.

Just one suggestion as to the mode of conducting the drill exercise. I am not going into the question of the "how," but simply to state one guiding principle, that is to say: Give the drill exercise to the people who need it and not to the people who do not need it. It is barely possible that you have seen a class being drilled and the best pupils in the class, who did not need the drill at all, were the only ones who answered, and there was no mental activity on the part of those not answering except to hear what the others said and perhaps to repeat it, parrot like. If you have people in the class who do not need the drill, sent them to their seats. Do not bother them.

The drill exercise should be of the kind to demand the highest possible mental activity upon the part of the people who need it. I do not want to modify this statement in any way, because drill, to be effective, must be quick, sharp, short, and decisive.

TEACHING IN THE RECITATION—ITS RELATION TO TESTING AND DRILLING. ASSIGNMENT OF THE NEXT LESSON.

I do not think I need to say anything further upon this topic. I only care to reinforce what I said this morning, that the things which are to be demanded of the pupil are conditioned upon the kind of an assignment made; that, if the assignment has been vague and indefinite, it cannot be expected that the demands will be met by the pupil. The demand comes upon the teacher to make preparation for such an assignment as will make the demands upon the pupil proper and make it proper for him to enforce those demands. When in the recitation it appears that a pupil has done his best and still does not understand portions of the lesson or does not see the relation of part to part, there actual teaching has to be done. What that teaching shall be is determined by the purpose of the teacher, by what has to be known or done to accomplish this purpose, and by the testing to disclose what the pupil still needs. When the teaching has been done a further test may disclose the fact that drill is necessary to fix the knowledge or to give skill in using it.

ANSWERS TO QUESTIONS.

Mr. Harvey—A few questions have been handed in which I want to take up now. "To what extent does the making of a topical outline or syllabus, and the occasional revising of it, necessitate the proper attention to these fundamentals? Your propositions have never been brought to my attention before, but it seems to me that I have always observed them and most especially when I have revised an outline of a subject preparatory to having it reprinted." (F. R. Clow.)

In answer to the first part of the first question, whether in the making of a topical outline it requires the use of these propositions, it depends upon the outline and the purpose for which it is made. If it be the purpose simply to organize the matter in logical order, then I have to see exactly what is needed and I have to know some things outside of it that are necessary for the understanding of it, in order to so arrange it. If it is for my own use, it will not involve the use of the third proposition; it will not involve the first proposition. If a topical outline is to be made out for the purpose of formulating the subject for the purpose of teaching it, an added use of these propositions might occur. A topical analysis of a subject is a somewhat different thing from an assignment of a lesson. I make the topical analysis for my own use, or for another's. If I make it for another's, my responsibility ceases when I have arranged the matter in logical order so that a mind working normally shall see it in that order. My responsibility ceases there. When I have presented the outline to the pupil, if I am going to assign it or any part of it as matter to be prepared for the recitation, I need to go still further and determine for myself what knowledge must be possessed in order that the portions assigned may become known.

And next I must determine what of this the pupils know, because I am dealing now with the individuals,—the other part of the equation. The first is determined by the nature of the knowledge. The second is determined in view of the individual who is to do it, and thus from these two standpoints I get clearly before myself and my pupil what he is to do for the next day. So there would seem to be more in the assignment of a lesson demanding the use of these propositions than in the outlining of a topic. The outlining of a topic compels the logical order of arrangement of the materials.

"Why cannot questioning to teach be combined with questioning to test? Prof. Birge and many other teachers in the state so combine them?" (Name of person asking the question not given.)

Most assuredly. I have not said to the contrary, I hope. I did say that the question to test must precede the question to teach, and I want to repeat that, and I am very sure that that is what Dr. Birge does, for if he does not do it, he has the cart before the horse, because the questioning to test determines the necessity for teaching, and teaching without the test is only an assumption of necessity which may or may not exist. Oftentimes the question to teach follows immediately upon the question to test, because the next subject can not be taken up until that is mastered. It depends upon the nature of the subject.

"Under proposition II, in the assignment of a new lesson, how far

should a teacher give information which he deems necessary for the pupils to know, and how far should he leave the pupils to get this information themselves in the preparation of the lesson?" (H. N. G.)

That is a very difficult question to answer. I do not think I can answer it completely and fully. But I want to say this, as a part of the answer: I think there is no other pedagogical maxim more mischievous than the one so often quoted: "Never tell a child anything he can find out for himself." If there is any better way of wasting time than that, I have yet to discover it.

Let me say this, that some of the worst practices I have ever seen in teaching have been at this point. The pronunciation of a word to be learned, and perhaps a piece of an old dictionary in the school house, and forty pupils are sent to look it up. Think of the waste of time when an instant would have sufficed to teach the meaning and pronunciation of that word. Would it not have been better to teach it than to waste the time spent in looking at the pictures in the dictionary? There are a great many things which it seems to me it is the business of the teacher to tell, and make the telling teach. I may tell a thing and not teach it. I should test to see whether that telling is really teaching. Of course, this may be open to criticism on the part of people who want to have the children rediscover everything that has ever been discovered and work out anew these things. I would just as soon live in the first century as in this one if I thought I were not going to be able to take some things for granted that have been wrought out in the last twenty centuries; if I thought I were not going to be able to get some things without this process of rediscovery. There are plenty of things which may be presented to the pupil without any prolonged process of rediscovery and there are plenty of other good things for him to exercise his powers of discovery upon without wasting them on the things that have been discovered over and over again.

So I say that that is a question which no one can answer, except in a very general way. I cannot answer it any more definitely than that. I know it is not very satisfactory.

"It seems to me that pupils should be given some opportunity to hold themselves to their daily work. Let them sometimes have the single responsibility to do this work in such a way that they can produce the results at the end of the quarter. It is imposing a large responsibility rather than a small one. I am aware that this is allowable only to a degree. I employ it more than most other teachers." (F. R. Clow.)

That is a proper thing to do under certain carefully guarded restrictions. It would not, in my judgment, be a proper thing to do as a matter of general practice in a Normal school, because it leaves out one kind of training which these pupils need to fit them for the work which they are to do. It takes maturity of mind in order that one may properly have this responsibility put upon him. No one who is not quite mature can do that. There are certain phases of work which the immature student may be set to work upon with a degree of hope for success, but I think they are within rather narrow limits, and as I have gauged the classes of pupils we meet in the Normal schools, it seems to me that there is need for the guidance and direction of the teacher to the end that there may not be a waste of time and energy;

and yet I do not wish to be understood as not intending to have any responsibility put upon the pupil. I would furnish enough of that kind of work to make him feel that he had a responsibility. But what he needs now in his training as a teacher, is training in the organization of his method upon the basis of organizing it for his pupils. I would furnish some opportunity to test his power in this direction. I say it must be guarded carefully, or we shall discover a little late perhaps, that the pupil has not been grasping what is to be done.

"Assuming that the Normal teacher has a lesson plan, is it wise to state to the class at the beginning of the recitation the purpose of the lesson?"

I certainly should do that sometimes. I should sometimes conduct my recitation and ask them to tell me my purpose. I should sometimes conduct my recitation and try to have them organize my plan for me when through, trying to train the power to do that work for themselves, in one way at one time and in another way at another time.

"How may the four propositions be applied in the physical training department under conditions that now exist there?"

I cannot answer that because I do not know the conditions that exist there. Under the conditions which exist, do you have any definite purpose in the work to be done tomorrow? If not, and no purpose can be determined and there is no purpose, they cannot be applied.

If there is a purpose and that purpose demands anything in the way of knowledge, then it is possible to formulate what are the essential elements of that knowledge. In other words, what must be known in order that that knowledge may be mastered? Is there anything to be done in the way of training for tomorrow? If so, then it devolves upon the teacher to know what are the essential elements of the work which it is the purpose to do tomorrow as it should be done. If it be any sort of a physical exercise which has a certain definite purpose to accomplish, what are the conditions under which that can be done? There you have proposition II. These are the things which must be clearly in the teacher's mind. If not, he is very likely to give a kind of exercise that is not adapted to the purpose. It may possibly have value and it may possibly work damage to the pupil, so there is the necessity for formulation in the teacher's mind of what it is necessary to do in order that a given purpose may be realized tomorrow.

If there is any work to be assigned to the pupil in the way of preparation for tomorrow, then the third proposition comes in to determine what that work shall be. What does he know now? What can he do now? What needs to be known or done between now and tomorrow in his preparation? It would seem to me that this depends upon whether the conditions are such that you expect to have the pupils prepared and to show as a result of that preparation enlarged knowledge tomorrow, or prepared to show as the result of that preparation greater skill in some physical movement tomorrow. If it is not the purpose to make the preparation, but to do the work in the class under the direction of the teacher, then the teacher needs to know what is involved under proposition II. He needs to know what is involved under proposition III, so that he may confine himself to doing what is left under proposition IV, and not waste his time in doing something else.

"Is there not danger that the uninterrupted recitation, in which

'talking well' is the ideal, will result in inaccuracy and sacrifice of truth? We have found library reading recitations to give this result."

No, not at all. The uninterrupted recitation is not the whole recitation. When the individual has proceeded to state what he has to say uninterrupted by the teacher, it is not to be left there if he is inaccurate, incomplete, or indefinite. But he has had his chance. You have given him fair play. You have shown him that when you asked him to make preparation yesterday you expected to give him a chance to show it today. Now, either through the work of the other students, or through the teacher's own work, may come the correction of that statement, the enlargement of the students' knowledge, the making definite what was indefinite, and making clear what was cloudy in his mind, and you will remember that I said this morning, there should follow, if possible, another statement on the part of that pupil. Perhaps tomorrow a restatement in the light of the supplementary preparation. It does not seem to me that that involves any inaccuracy. It involves giving the pupil a chance to do his best. When that is done it involves making his recitation better and making that better his best.

Mr. Rockwood—Would you advise that the teacher should not come to the rescue with his own knowledge until he had exhausted the resources of his class?

Mr. Harvey—It seems to me that it is fair to give to the pupils in the class a chance to show what they know. If I start in with a single pupil and he covers that recitation, and then go on to furnish the supplementary matter myself, I ignore the rest of the pupils in the class. I ought to give them a chance to see if they can improve upon what has been stated.

As to this library reading—"We have found library reading recitations to give this result."

I do not think library reading is given simply for the purpose of securing accurate information. I do not think that is its purpose at all, not that there may not be that in it, but if that is all, it is pretty dry stuff. I want library reading for something more than that. I want to saturate the child with literature, I want him to know something about literature, to read because he loves to read, and to read that which he likes to read. I do not want to question him too closely upon it. I do not want to hold him too closely for results. I do not want to ask him to write out a full synopsis of every book he has read. I read two or three books a week and I would not think for a moment of doing it if I had to write out a synopsis of them.

I want to tell you another thing. The written synopsis of a book is not worth a hundredth part of the statement which the pupil makes when he talks to you about what he has gotten out of that book. There is one of the most excellent language exercises that has ever been devised, and you cannot put anything into your school which will take the place of it. The pupil gets in this wide reading an acquaintance with books and a vocabulary. He does not know why. It is not necessary that he should. We do many things and cannot tell why we do them. It would be pretty hard to tell why you fall in love. It might be discouraging to have to write a synopsis of it.

I should grant the statement made if the purpose were simply to get information, but if the purpose be to get inspiration, if the purpose be

to get acquainted with literature, to know books and to love books and to love some things in the books without having to love all, if that be the purpose, then I do not think that result will follow.

"Are the fundamental propositions strictly applicable to the study of literature? I do not mean information about literature or any scientific phase of it, but pure literature. A love lyric of Burns, for instance, or anything in the realm of the affections. Is it psychologically possible to prepare pupils for a deferred emotional experience? If it were possible, should not that experience be deferred until the meeting of the class to utilize the stimulation of the number enjoying it?"

The application of these propositions is most easily made to the exact subjects, to mathematics, to science, and so on. They are less easily applied to geography, history, and literature. But I shall have to come back at you with this proposition: Do you have any definite purpose when you assign a piece of work for your pupils to master for the next day? If you have not, that settles it. I have nothing further to say. These propositions do not apply. I think it will be altogether likely that there will be times when you cannot tell whether you have the purpose or not; when you do not know what is coming; when it is impossible to tell. What the pupil is getting out of that love lyric nobody knows. There are certain periods when the pupil would get nothing out of it. He has not come to it, and then he may have passed to the stage where it is purely reminiscence. It depends upon the conditions of the pupil. If I am right in what I have been saying, you have to settle this for yourselves: Have you any purpose in the work? If you have, can you state it. If you cannot, would it not be a good idea to work until you can? A purpose in life which I cannot state, which I cannot put into language, is rather a vague sort of a thing. Would it not be better to make it a little more definite? If there are these illusory things in literature, I would simply take them as the flowers, the ornamentations; they simply come as the decorative, the beautiful.

Going on with the subject of the purpose, the question is: Is it necessary that there shall be any new knowldege for tomorrow? If so, then how shall we determine what these pupils are to do, how shall we determine when they have done it? If you are not able to state what knowledge must be mastered to the realization of that purpose, I must leave you to answer the question.

"— not studying about literature, not studying about and scientific phase of literature"—just plain literature. That is one of the beauties of it, one of the things that this library reading does. It gives you something and you cannot tell just what it is.

I want to ask you to do something. You will notice that we have as a part of our program for Friday the consideration of questions which may grow out of our work here, or which perhaps may not be touched by our work here, and which some of you would like to have taken up. I would like to have you formulate these questions as early as possible. We will take up such of them as we can. We cannot undertake to discuss very fully questions outside of the present scope of our work, but we will do all we can, and I hope you will be free in your discussion.

Mr. Salisbury—I agree entirely that it is possible to overdo this drilling, as Mr. Harvey said some time ago. I should like to know if Mr. Harvey conceives that it is overdone in the Normal schools of Wiscon-

sin. My observation is that this drilling has rather gone out of fashion. It is rather hard to find any of it, and the reason is that the teachers do not like to do it. The teachers do not like to drill classes because the pupils do not like it.

Mr. Harvey—I think you are entirely right. My reason for putting that so strongly is that in the schools outside of the Normal schools I have seen so much of it.

Mr. Salisbury—Do you find Normal school graduates doing it?

Mr. Harvey—I have seen it sometimes.

Mr. Salisbury—I do agree as to the importance of oral expression, and doubly so in the case of Normal school students. I say to my students: "As teachers you will have to talk. If you cannot talk in the recitation upon prepared matter, where are you ever going to talk?" And so, for their own sake, I urge upon them the necessity of talking and that they should deem it a privilege to have a chance to talk in the recitation.

Is it your thought, Mr. Harvey, that this oral test should have a place outside of the daily test? Would you favor such a thing as an oral examination at any other time?

Mr. Harvey—I would, yes.

Mr. Salisbury—I should not expect it to take the place of a written examination.

Mr. Harvey—I think there is a decided advantage in having the pupil come out before the school and give an oral presentation, and I should like to have him do it sometimes before a group that is not so large. I think there is value in it.

Mr. Salisbury—In regard to the teacher who does the reciting, I do believe that it is the greatest evil in our teaching. This widespread practice is a matter for serious contemplation. What are we going to do about this habit of the teacher of doing the greater part of the reciting? There are three or four reasons for it. One may be the simple loquacity of the teacher,—pure loquacity; there are others with whom it is a sort of scholarly conceit. I rather thought this morning that Supt. Harvey considered that to be the common cause. It hardly seems so to me. It seems to me that the most active cause of this talking habit on the part of teachers is pure indolence. It is so much easier to do the talking than it is to make the pupils to do it; so they recite because the pupils cannot or will not. They follow the line of least resistance. Is not that the trouble four times out of five? I have this habit myself, but I do not get it that I am aware of in any of these ways. I was an institute conductor for nine years. This would develop that habit in any man.

Mr. Livingston—I do not know whether it is safe for an institute conductor to get up after that speech. The most common objection made to these four propositions next to the one you spoke of last is "the tendency to formalism." It seems to me that the application of these four propositions is something like putting a skeleton into our teaching. Of course, a skeleton is a formal thing. But because I have a skeleton that I live upon, I do not have to center my thought on that. The principle is "Ye shall know the truth and it shall make ye free."

Mr. Pray—I am going to add a remark to what Mr. Salisbury has said. Perhaps no one of these three reasons he speaks of is applicable

in some cases. In an institute, if the conductor finds that a certain thing is not coming out and it is a valuable thing to have brought out, and he applies the screw without avail, he talks it himself. And I suspect that oftentimes teachers do that same thing, because they are under the same necessity that the institute conductor is. They want to get the thing done.

Mr. Salisbury—Do they get it done?

Mr. Shutts—Can it not be accomplished in this way: Put the pupil before the class and say, "You are responsible for making the class understand this proposition." Let him consider the class as his, and that he must be responsible until he has finished. The teacher must in some way prevent the class from losing time. It seems to me that that puts him in the relation of the teacher to his own school and has pedagogical value.

Mr. Harvey—Especially valuable to the Normal school student.

Mr. Walker—Just one thought in connection with two or three question you have answered. If the purpose is inspiration, as we grant that it is for the pursuit of some studies, there is still a necessity for the application of these propositions in order to have definiteness of aim, clearness as to what the pupil needs and definiteness as to the teacher's order of procedure.

Mr. Harvey—I want to say a word in confirmation of that and to strengthen it if possible. That the inspiration we are trying to develop that is not guided and guarded and purposeful is too often not inspiration. It is mere effervescence,—soda water. We need to consider this: If this is inspirational work and I am to be the inspirer, then it is just as amenable to inexorable law as anything else. You may bubble and effervesce and get excited and all that sort of thing, but this inspiration, this process by which you inspire pupils, may very largely be worked out as a matter of cold-blooded thought. There are some people who will be an inspiration, and perhaps they have never thought of it. But the individual who has studied the individuals he is to inspire; who knows what their attitudes are; what will appeal to them; what their mental condition is at that moment; how it has come about; what will be the next natural step,—that individual is better prepared to do the work required. And so it seems to me that there is great truth in what Mr. Walker says,—that there is the same need for study along this line of how to inspire. How shall I inspire of love of literature? Just get it. Well, that is one way. But when I come to address myself to the problem "What are the elements in it?" I ought to be able to analyze that problem with a reasonable degree of accuracy, and then I ought to address myself to determining how to reach those conditions. When you say it cannot be done, it is a fatal admission, because it means, fellow teachers, that there is not any such thing as the application of the science of teaching to that phase of the work.

GENERAL SESSIONS.

TUESDAY, Dec. 18, 1900.

Forenoon.

Mr. Harvey—The first subject on the program this morning is, "Should all teachers in a Normal school have some knowledge of psychology? If so, what may be regarded as the essentials?" presented by Mr. Lough of Oshkosh.

NOTE.—Professor Lough was placed at great disadvantage by the failure of the printer to deliver "A Syllabus of Psychology" which he had prepared, and he was thereby forced to speak from a mere Index. His presentation of the matter and the discussion which followed occupied a large part of the forenoon. The following short papers became involved in the discussion and their presentation was requested for the information of the institute.

SHOULD ALL TEACHERS IN A NORMAL SCHOOL HAVE SOME KNOWLEDGE OF PSYCHOLOGY?

PRESIDENT ALBERT SALISBURY, Whitewater.

Every teacher in a Normal school should have at least as extensive a knowledge of psychology as the school expects its graduates to have.

The following is a brief summary of the vital points in psychology, from the educational standpoint, which should be firmly lodged in the mind of every teacher of children and every teacher of teachers.

1. An understanding of the nature of the perceptive process and a realization of the fact that sense-experience must furnish the original data of the mind, the raw material, so to speak, on which all the other mental powers may exercise themselves.

2. An appreciation of the dependence of memory, and hence of other activities, on (a) Depth of impression, through Interest and Attention. (The whole doctrine of interest comes in here.) And (b) on strength and breadth of Association. (Out of this grows the argument for correlation of studies.)

3. An appreciation, seldom possessed, of the importance of the cognitive imagination as the means through which our knowledge gains its widest extension. Sense-data go but a little ways till taken up and recast by the imagination; while, on the other hand, imagination has nothing on which to work till experience has furnished its materials.

The pedagogical application in this case may be embodied in the broad maxim, "From the known to the unknown," a formula rather unnecessary, however, since we cannot possibly proceed in any other way.

4. A clear apprehension of the truth that Abstraction (analysis) and Generalization (synthesis) are the fundamental elements in all thinking, that without them there can be no general knowledge, no science. They are the basis of all definition and all classification; though, like imagination, they are dependent on experience for their data. English grammar properly taught, is an excellent discipline for these activities.

5. A thorough insight into the nature of *Language* and its necessary relation to thinking. It should be clearly recognized that the first use of language is to *think in*, and that there is no such thing as the "conveying" of ideas from one mind to another. "Langauge is an appeal to the ideational consciousness of another." Nothing absolutely new can be put into the mind of another by language. He must construct his own ideas; language can only excite his mind to this activity.

6. Enough of logic to apprehend clearly the difference between induction and deduction and the relation of each to the intellectual growth of the child. (This involves an appreciation of the relation of the general notion to the individual notion.) The connection of all this with the doctrines of General Method should be grasped; and the teacher should be conscious at each moment whether he is teaching inductively or deductively.

7. A familiarity with what is covered by the Herbartian use of the term Apperception, such that he (the teacher) may always be on the *qui vive* to discover the pupil's standpoint of apprehension, thus becoming watchful as to the causes of misconception and non-apprehension. Here, again, the maxim "From the known to the unknown" has application.

8. An adequate apprehension of the relation of feeling to volition, as furnishing motives to both thought and action. It is an important part of the teacher's work to supply motives. He therefore needs to be acquainted with the gamut of motives, their relative value and elevation. The function of feeling as *interest*, forming the basis of attention, and consequently of all intellectual conquest needs to be clearly understood.

9. An understanding of the nature of reflex action, and the ability to recognize its manifestation. Also of the nature and conditions of involuntary attention.

10. Second to none of the foregoing in importance to the educator is a scientific knowledge of the laws of habit, of their conserving and economizing force and the inexorably destructive power of wrong habits. A realization that in the formation of habits "a stitch in time saves nine," and that the mischief of early bad habits can never be overtaken.

PSYCHOLOGICAL TRUTHS.

NOTE.—These truths, or principles, were agreed upon by the Faculty of the Milwaukee Normal and presented by Pres. Charles McKenny.

I. The mind develops only through its self activity. Knowledge or power cannot be inherited nor transferred from one mind to another but must be acquired and developed by individual activity.

II. Development intellectual, emotional and volitional proceeds

through the interpretation of new experiences by means of those past experiences which have been assimilated.

III. The unfolding of the mental powers and the development of the organs of the mind, i. e., faculties, always proceeds in a definite order from infancy to maturity.

IV. Mental development is due to the constant interaction of (1) the hereditary characteristics, and (2) the various factors of environment which the mind selects from the complex whole.

V. The exercise of a mental or physical activity gives rise to certain modifications which tend to persist, i. e., to become habitual. The extent and permanence of such modifications depend largely upon age (brain plasticity) and nutrition on the one hand, and thoughtful attention (interest) on the other.

VI. All mental activity is conditioned by brain activity, brain activity in turn is modified by general bodily conditions, chief of which are nutrition and fatigue.

VII. A sensory stimulus or an idea is incomplete until its motor tendencies have found expression in physical movement of some sort. This expression clarifies, intensifies, enriches and makes concrete the original experience, giving it significance and permanency.

Essentials of Psychology.

(Copyrighted.)

Mr. Harvey—I have just a few moments left for the consideration of the next topic* I do not need very much time because the proper discussion of this topic would suppose that we had reached a determination as to the essentials of psychology. I am just a little at sea, I confess in that matter. I am a good deal of a believer in the idea that there are some essentials in psychology for the Normal school teacher and that you can name them and that you can number them and that you ought to do it. I am not a believer in the idea that because one knows an immense amount of psychology that, therefore, he is a better teacher. Some of the worst teachers I have known are the people who teach psychology. It is not simply because one knows psychology that he is a good teacher. Some of the best teachers I have ever seen had read very little of psychology and knew very little about it. Somehow the mind has a way of working inspite of the school teacher. The pupil oftentimes learns in spite of his teacher. How many of us have had that experience as pupils? Before psychology was thought of or worked out, people did learn something. People did know something. People did exercise their will, and I suspect that the children of today are going to do the same thing. And then it occurs to me that the problem comes for the Normal school teacher in about this shape: Is there anything in this field of psychology which has been developed through a careful study of the mind, its nature and processes, that this teacher can seize upon and because of his knowledge of it, be

*a. Do all Normal school teachers have a knowledge of the essentials of psychology, and such a recognition of their value as will result in the application of these essentials in their teaching processes?

b. If not, how can such knowledge be acquired and the application secured?

better able to cause the pupil to know, to do, and to be what he should know, do, and be in the schoolroom and in life?

I am of the opinion that there are some things in psychology that are essential and that the teacher may never have heard of psychology and still be using these essentials. But that is no warrant for saying that, therefore, a teacher need know nothing about psychology, because those people are as rare as angels' visits and hens' teeth. It is only occasionally that you see them. There are pupils whose minds work in a logical manner naturally, and who somehow instinctively do the right thing at the right time. But our whole system of Normal school training, in this and in other countries, is built upon the assumption that it is best to aid the less fortunate mortal who has not this power, this genius. It is to enable him to do what he is undertaking to do more systematically, better, and more economically. Therefore, I believe that every teacher will be benefited, other things being equal, by a knowledge of psychology, and when I say "other things being equal," I mean that he shall use such portions of his psychology as are usable.

You have gone over this field and discussed the second question as fully as the first this morning. I have been very much interested in your discussion. It has disclosed how wide apart we are and how near together we are.

It seems to me that our business in the Normal school is three-fold, to train our students—to know, to do, and to be. If that be true, then psychology ought to aid us to have our pupils know better that which they ought to know; to do better, more surely, more economically, and at the proper time, what ought to be done; and to be more fully and completely what they ought to be.

If there be anything in our psychology that enables us to bring to the consciousness of the pupils and to the guiding and directing of their activities, elements which will result in greater power and ability on the part of those pupils to know or to do what they ought to know or to do, that is an essential in psychology and the teacher ought to know it and to use it to that end.

If there be anything in our psychology which will, when mastered by the teacher, enable him the better to guide, direct and stimulate the will power of the pupils, to so train them that they shall the better control and guide themselves in school and out of it, that is an essential in psychology which every teacher should recognize and apply in his work. In the Normal school it is important for us to apply those principles of psychology concisely, definitely and persistently, to the end that we shall get the result which we are seeking.

I have stated briefly in these three propositions practically what you have been going over this morning, simply to give another phase or aspect of the question. It seems to me there are two or three things to be considered in order to reach these ends. The first thing is the processes of knowing. People have *known* before they knew there was such a thing as psychology.

It is the teacher's business to determine, and it is for the pupil's best interest that he shall determine, what the pupil has to know, and what he does not know, and hence, what is yet to be known, and then through proper guidance, direction, and stimulus of the pupil, to lead him to the point of mastery of what is to be known.

Observation of the work of many teachers leads me to the conclusion that this matter is largely neglected. We read or lecture to our pupils, as though we did not realize that they get nothing from words oral or written, beyond a stimulus which serves to bring up in their minds the ideas for which these words are symbols. If the ideas are not there, the words are meaningless. It is true that a pupil may as a result of reading or listening, have some ideas which were not previously in his mind in the same form, but this is because new relations between old ideas have been established, thus creating new, and perhaps enlarged ideas.

If it be important, then, that the teacher shall know in advance what must be known by the pupil, in order to master a given piece of knowledge; if it be important that he shall determine from day to day what of this the pupil already knows, for the purpose of making clear to him what he has yet to master, then is it not important that we shall focus our attention upon these essentials in the Normal school; that we shall discuss them in our faculty meetings; that we shall examine critically our own work in this respect; shall report to others and discuss with them what we and they are doing in this direction?

The second proposition is, that one of the important lines of work in the Normal school, is to train pupils to *do* something. One of the first essentials in the training to *do* is training to develop the power of attention, and if the teacher's psychology does not focus strongly upon that, if he does not recognize the psychological principles governing attention and does not apply them, he has failed materially to do the thing which ought to be done.

More than that, attention lies at the foundation of interest, or interest at the foundation of attention—whichever you please. Both are true. That being a fundamental thing in making progress, that being fundamental in getting a well regulated self-activity to a given end, it seems to me that it is worth while for us to discuss in our faculty meetings the question: What can we do to train the power of attention in these pupils so that we may better hold to the work in hand until that work is mastered?

The main thing in education is the formation of habits. I believe that one of the essentials for the teacher in a Normal school is that he shall understand definitely and clearly and thoroughly the psychology of habit forming; that it shall be just as much a part of his work to train his pupils in habit-forming, as it is a part of his business to teach him arithmetic, geography or history. It is the thing which will stick to him through life. It will shape his future career. It will determine his success. The teacher in the Normal school is the one whose business it is to see that habits are formed and formed correctly, and to train the students under his tuition so that they shall go out to train others in the formation of correct habits.

The third proposition relates to the training of the will. If there be any such thing as training the will power, if that is vital in the future welfare of the child, then it seems to me that the teacher in the Normal school should thoroughly understand the psychology of the will, and not only understand it, not only be able to discuss it, (I do not care if he cannot settle all the mooted questions), but he must bring to bear upon his pupil who has no will-power or control over himself some stimulus

that gradually will develop and unfold that will-power until that individual becomes self-centered, self-controlled. Then he is doing the highest work that any teacher can do. The Normal school teacher who leaves that to accident, or to inspiration or to whatever may happen to bring it out, is a teacher who has neglected the greatest opportunity offered in his work. I believe a study of psychology will enable him to do this better, provided he shall keep this in mind: "I am studying this to get something from it that will aid me in my practice with my pupils." We sometimes lose sight of that. We get interested in our investigation and in following out a line of thought and do not think of that.

I have not time to discuss how these things can be brought about. I believe in the psychology of attention, the psychology of habit-forming, the psychology of will-training, and in the application of that psychology in the school. I believe these are the absolute essentials of psychology in Normal schools. There are other things that are valuable. When I use the word "essentials," I mean the things we *must* have if we are to do our work well. It does not mean that there are not other things which will aid us in doing our work well.

We need to have an apperceptive mass of psychologic truth to get out of literature, or whatever it may be, the psychology that there is in it. It was not what Professor McGregor got out of McDonald, but what McDonald got out of McGregor. If it is not in the reader it cannot be gotten out. Your psychology will arrange it, organize it and bring it to the front. I would like to have a study of psychology that shall pave the way for the extensive application of just the things we need.

GENERAL SESSIONS.

WEDNESDAY, Dec. 19, 1900.

Forenoon.

Mr. Harvey—The first topic for discussion this morning is: "What important pedagogical maxims, truths, or principles should be known and applied by Normal school teachers?"

You have had placed in your hands the paper prepared by President McGregor, and he will at this time take up that paper and give some illustrations, explanations and statements with reference to the application of these maxims, truths and principles. His presentation will be followed by a discussion, a general discussion, in which I hope there will be the utmost freedom of participation.

PEDAGOGICAL MAXIMS, TRUTHS AND PRINCIPLES.

PRESIDENT DUNCAN MCGREGOR, Platteville.

PRELIMINARY CONSIDERATIONS.

A. Normal school teachers should know that the spirit of the teacher is the most important factor in his professional growth, for instance:

1. That the most important qualification of a teacher is admiration for and cultivation of noble character. Manhood is the only safe foundation for this profession. We in some measure assume the qualities we admire.
2. That the teacher must have unfaltering faith in the efficacy of education,—a thorough belief in the Kantian doctrine that, man can become man only by education. "Whatever should appear in the citizen," said the young Kaiser to the teachers of his Kingdom, "you must put in the school."
3. That the teacher must ever seek to acquire greater teaching power. He who is not a learner cannot be a good teacher.
4. That whoever would make a business of teaching should have a large and especially a well organized supply of teachable material, including enough of logical sense to distinguish between inductive and deductive reasoning and their proper applications. We can teach only what we know, Jacotot to the contrary notwithstanding, and let me add, we must know how to teach what we do know.

B. Normal school teachers must have a clear conception of what that process we call education really means. So far as I know the most recent authoritative delivery on this subject is among the last words of Prof. Thomas Davidson and given to the public only a month or two ago. "Education," he says, "is conscious or voluntary evolution." With these considerations to shape ideals and this definition as a sort of working hypothesis, the following thoughts are offered for consideration:

I. These relations should be recognized.

1. Truth—Mind and body constitute a partnership and, therefore, each is entitled at all times to the co-operation of the other.
   Maxim—"A sound mind in a sound body is a short but full description of a happy state in this world."—Locke.
   Principle—The teacher must count with physical condition.
2. T.—Through sense activity the raw materials of knowledge come into consciousness.
   M. (a)—"Nothing is in the intellect which has not previously been in sense."
   (b)—Sensations are the mind's capital.
   P.—In the earlier stages of mental life the child must be encouraged patiently and carefully to collect sensuous materials.
3. T.—Repeated reactions of sense upon an object result in significant sensation, or that state of knowledge called perception.
   M.—Dead or unused capital brings no returns.
   P.—The teacher should see that whatever capital the child has on hand shall be put to use. The net balance of today becomes the live capital of tomorrow. This principle holds true throughout experience and underlies that set of principles to which belong,—from the familiar to the unfamiliar; from the indefinite to the definite, etc., all of which indicate a movement that mind cannot evade.
4. T.—The advance to rich conceptions is through clear and abundant perceptions.

M.—We reach the higher rounds of a ladder only by making use of the lower. This applies to all stages of progress.

P.—The most difficult step upward is from perception to conception, from particulars to generals. This step can never be made short. Therefore, at this point the teacher needs great skill and the pupil great patience. Here scientific method first manifests itself.

5. T.—Every act of mind is a compound of knowing, feeling, and willing. While these are in proper balance they reinforce each other, where either one is in excess the others suffer eclipse.

M.—Energy expended in emotion is not available for reasoning, and vice versa. Money spent in luxuries cannot be used in paying for necessities.

P.—An illustration similar to the following may serve to give emphasis to the principle here applicable: The sum of the sides of any triangle is constant; when these are equal the triangle is balanced and encloses the greatest space. As either side increases, one or both of the others must diminish, the triangle at the same time becoming more and more unbalanced or lopsided and the area shrinking, until at last the triangle vanishes in a single line enclosing no space.

6. T.—All knowledge,—all mental acquisition,—comes by self-activity.

M.—No activity, no growth.

P.—The chief function of the teacher is to secure right mental activity on the part of the pupil. This thought was in the mind of Philip of Macedon when he entrusted his son Alexander to the tutorship of Aristotle with the one direction,—"Make yourself unnecessary as soon as possible."

II. Conditions that favor right activity.

1. T.—Interest determines the direction of activity.

M.—Where no interest is, effort is paralized.

P.—Interest may be aroused by a happy blending of the familiar and the novel. Excess of the familiar produces monotony, which is mental chloroform; excess of the novel produces distraction.

2. T.—Attention follows the lead of interest and is steadied and given purpose by interest.

M.—"Interest is the mother of attention, attention is the mother of knowledge, if you win the daughter, make sure of the mother and the grandmother."—Joseph Cook.

P.—Fickleness of attention is natural to the young and immature, but in older and more mature persons it is a sure sign of weakness and should receive careful treatment.

III. Choice of materials.

1. T.—Teachable materials are far from being of equal value as mental nutriment to all pupils, or at all times to the same pupil. Each stage of advancement and each peculiar condition must be considered in estimating educational values. Unassimilated materials can not make knowledge. Cramming comes largely through the unsuitableness of materials.

M.—"Cramming is a species of intellectual feeding neither preceded by appetite nor followed by digestion."—J. S. Blackie.

P.—The teacher must satisfy himself that the pupil really knows what he appears to know, otherwise it may be a case of cram or probably better, sham. Skillful questioning, oral or written, will disclose the true inwardness of the case. "Say something, that I may know you," said Socrates.

IV. Preparation of materials.

A. By teacher.

1. T.—The mere fact of knowing does not guarantee ability to impart. Knowing for self alone is, by no means, equivalent to knowing for the sake of others. Even knowing for the purpose of telling is not sufficient in this case. The teacher must know the facts, he must know the attitude of the pupil toward the facts, and the effect that the facts are intended to produce when they become knowledge of the pupil.

M.—Knowing to teach = Knowing subject + knowing mind to be taught + foreknowing effects.

P.—The Normal school teacher must prepare himself, his materials, and his pupils with a view to bringing about predetermined results. The Method of the What secures this kind of preparation.

B. By the pupils.

1. T.—Understanding comes by relating the new and unfamiliar to the old and familiar. The mind moves step by step and step after step from old to new. Each new relation established enhances the value of both old and new. This makes science or related knowledge. An isolated fact or an isolated lesson plays no part in the evolution of mind.

M.—In organizing knowledge we organize mind. "With all thy getting get understanding."—Prov. IV., 7.

P.—Proper preparation by the pupil demands proper facilities, and intelligent direction on the part of the teacher.

2. T.—The pupil's preparation should be independent of assistance from other pupils. Thinking is individual. Independent work is the profitable, the strong work.

M.—Beggary is debasing. Soliciting alms for show in a recitation is beggary bordering upon dishonesty.

P.—The pupil who is true to his own interests will not allow another to help him in preparing his lessons.

3. T.—The mere fact that a lesson is assigned or a question asked implies that effort is to be put forth to meet the requirements.

M.—The business of the pupil is changing problems into postulates.

P.—The pupil should squarely face his problem without flinching, and honestly tackle every interference. Probably some of the laws of the football field could be used here to advantage.

V. The Recitation.

1. T.—The recitation is the pupil's opportunity to prove to teacher and classmates his loyalty to his calling, his trustworthiness in the discharge of duty.

M.—The reciter is the star performer in the act in which he appears.

P.—The teacher is presiding officer of the meeting, should himself observe parliamentary usage and require like observance of others.

2. T.—The recitation is for the exclusive benefit of the members of the class and each member should be allowed to reap the benefit.

M.—The pupil, not the teacher, should do the reciting. It is their inning, not his.

P.—Since impression completes itself in expression, the outward symbol should certainly be as complete and perfect as possible. Utterance is only utterance of an idea. Here we find one pedagogical warrant for kindergartening, modeling, sketching, composition, and manual training.

3. T.—The rights of listening classmates are of equal validity with those of the reciter.

M.—A recitation is a class performance.

P.—Members of the class should have the first chance of making corrections or amendments. The teacher has no call to share in the reciter's work while a pupil can supply what may be wanting.

4. T.—The teacher's attitude toward the recitation will, more than any other one thing, determine the attitude of the pupil toward his work.

M.—Children, probably adults, too, will do no more than they expect will be required.

P.—The recitation is a job or piece of work to be executed in a workmanlike manner.

P.—The assignment should be so graduated that the pupil shall have no excuse for slighting preparation nor the teacher for hurrying the recitation.

5. T.—Something is wrong when the pupil must close his book while the teacher may keep his open.

M.—"Consistency, thou are a jewel."

P.—Every teacher should so master the lesson that the text-book may be discarded. The text-book in the hands of the teacher is a dead wall between minds that ought to be in closest communion.

VI. Management.

1. T.—Success in management comes through sympathy with the young on the part of the teacher, and confidence in the teacher on the part of the pupils.

M.—Mutual respect ensures mutual helpfulness.

P.—The child's interests determine his conduct, and through these the child can be most easily influenced whether they are within or without his school life. The teacher who can enter into some right interest of the child can influence that child to better conduct.

2. T.—In management we are very much at the mercy of home influences. Cordial relations between teachers and parents is the most powerful aid to good conduct. The establishment of such relations is impossible when the teacher holds himself aloof from the patrons of the school.

M.—"I am one of you," is the open sesame of all doors.

P.—Teachers should be actively interested in the enterprises, the industries, the welfare, the life of the community as a whole and its individual members.

3. T.—Rebuke and correction will frequently be needed, but the manner of the true teacher will show that the very thought of these is distasteful.

M.—From all nagging, scolding, and sarcasm, good Lord deliver us and our children.

P.—The teachers should consider the incident promptly, completely, and finally closed with the infliction of punishment.

4. T.—Heartiness should characterize commendation.

M.—Reluctant praise is both an injustice and an insult.

P.—The teacher will find the skillful use of praise and the sparing use of blame great aids in management.

IN CONCLUSION.

We have considered education an evolution, a continuous progress from indefiniteness to definiteness, from incoherency to coherency, from want of organization to organization. In order that progress shall be permanent we form a habit in the only way by which habit can be formed, that is by repetition. Hence it becomes necessary, after the right activity has set in, that it shall be firmly established by repetition or drill.

The foregoing principles should be known and applied by all teachers, but by Normal school teachers to such purpose that pupils shall be convinced of their practical value and confirmed in the underlying truths. A pedagogical principle must always hark back to a psychological truth.

SUMMARY.

General considerations.

A. 1.—The Normal teacher should be broad *minded* and noble in character.

2.—The Normal teacher must believe in education.

3.—The Normal teacher must be scholarly.

B. I.—The Normal teacher should have a well defined notion of what education means and govern his practice accordingly.

Special considerations.

I.—The Normal school teacher should recognize the intimate relation between mind and body; the general relation of exercise to growth; the relation of sensation to knowledge; the relation of any one stage of knowledge to every other; the relations existing between knowing, feeling, and willing; and the relation between self-activity and mental growth.

II.—The Normal teacher should understand the conditions that favor right activity and how to secure them.

III.—The Normal teacher should be a competent judge of the educational value ot the different school studies; know at what stage of progress each can be used to the best advantage; and how the dangers incident to the want of foresight and forethought on the part of the pupil may be avoided.

IV. A.—The materials of knowledge should be most carefully prepared so that they may be not only suitable for assimilation but attractive in the manner of their presentation.

B.—The pupils should so prepare themselves that each may give prompt and intelligent response to the work in all the stages of its progress, remembering that "To him who hath shall be given."

V. The teacher should bear in mind that the recitation is the pupil's part of the drama, and it should be so managed that each reciter will take pleasure in doing his best.

VI. In the management of the school, the teacher must count with the forces in the homes as well as those in the school; he is in the community and must be of it; he must be an organizer as well as an instructor; and, last though not least, must abound in what is next to the most effective possession of all,—good sense. Good character and good sense are the Alpha and Omega of the teacher's equipment. Other qualification can be secured through proper effort or study but these must be in the very nature.

NOTE.—The above paper was presented by Pres. McGregor with an acknowledgment of contributions from many of the teachers present, and also with a running body of comment and elucidation. The discussion that followed showed that a further effort should be made to secure a satisfactory compilation. In justice to Pres. McGregor and Prof. Lough, it should be stated that they were expected to present the matters assigned them in a purely tentative manner.

Mr. Harvey—I am anxious that we shall have a formulation of what may be deemed the essentials of psychology. I am going to ask a committee that I shall name to formulate as early as possible (if in time to report at this meeting, it would be preferable), and report to the committee having charge of this institute as appointed by the Board,—a formulation of those psychological principles. I will ask them still further, as a part of their work, to consider whether the formulation, just presented by Mr. McGregor, which has been in your hands for some days, needs re-casting in view of the discussion just concluded. I do not know that it has been explained, but the gentlemen who were asked to formulate both the essentials of psychology and these principles and maxims understood that the purpose in having them formulated and presented was to have something definite before the institute for discussion and that out of that discussion there might arise, if necessary, a re-formulation. I shall name as the committee Messrs. Salisbury, Jegi, Lough, Emery, and McGregor.

ARE THE IMPORTANT PEDAGOGICAL MAXIMS, TRUTHS OR PRINCIPLES NOW KNOWN AND APPLIED BY NORMAL SCHOOL TEACHERS?

L. D. HARVEY, State Superintendent.

As I have listened to the discussion this morning, it seems to me that very little time need be taken up on that question. Unquestionably many of the pedagogical maxims, truths and principles are known and applied by teachers, but I think it is equally true that many important pedagogical maxims, truths and principles are either not known or, being known, are not applied by teachers.

I was struck with President McGregor's statement that it was much easier to talk than to think. That is a very forcible way of putting it. It is much easier to think a thing out than it is to do it after thinking it out, and easier to do it than it is to get somebody else to do it. The most difficult problem of all is to get somebody else to do with their pupils what ought to be done with them. We know more pedagogical maxims, truths and principles than we apply.

Now, the purposes of this institute should culminate finally in the highest possible development of teaching power on the part of the student while under our tuition, and that means ability to do *what* ought to be done, *when* it ought to be done with the pupils these students will have to deal with.

I shall not attempt to specify what fundamental principles, or what essential principles, or maxims, or truths are not known and are not applied. It is a question for you to consider. This will furnish an excellent text for many a sermon which you may preach to yourselves, and out of that may come such an examination of your own work as will settle for you the question whether you are applying those pedagogical truths, maxims, and principles.

I want to call your attention to one or two things. "The teacher should see that whatever capital the child has on hand is put to use." It occurs to me that there is a principle that is not always applied; that it cannot be applied unless we know what capital the pupil has on hand. I want to call your attention to the fact that the third proposition of the four we have been discussing is the one which is to be made to answer that. And further, whether you do it as the third proposition or not, it is material that you do it sometime, so that you shall know what the pupil has on hand.

"The mere fact of knowing does not guarantee ability to impart." I think there are very few teachers in the Normal schools who do not recognize the truth of that so far as they themselves are concerned. But I wonder whether we always recognize that so far as our students are concerned. In other words, whether in much of our academic teaching there is nothing more than academic teaching; there is no thought of anything further. If that truth is important then we are ignoring it when we proceed upon the assumption that all our pupils need is knowing, whereas knowing is not enough. Now, do not get the impression that I am going to submerge and overwhelm and cause to disappear entirely the knowledge side, the accuracy side, the training side, with a

deluge of professional work. Not at all. But I do want this idea to be before you, that we must teach to enable our students to wisely train others. It seems to me that there is a good opportunity there for some self-examination and self-improvement.

"The Normal school teacher must prepare himself, his materials and his pupils with a view to bringing about pre-determined results." There is a whole volume of pedagogy in that one sentence.

The method of the "what" secures this kind of preparation. Whether you have it as formulated or not, that kind of preparation is never secured in any other way. I have said that several times and I expect to say it several more times because it is fundamentally true in the nature of knowledge and in the nature of mind. And that is why I am insisting upon it.

"Understanding comes by relating the new and unfamiliar to the old and familiar"—no more common truth; no one more frequently stated. Every teacher understands it. The pupil, of course, if he gets new knowledge and makes it old, must do it through the old. The question with us is: Are we interferring with the only processes of the mind by which the new may come into it? If we are, then we are ignoring this truth. Are we to assist the pupil when he is groping, when he does not know what is needed, when he cannot relate the old to the new, or are we to leave him simply to flounder, or is it our business to study *how* we are to make this relation of the old and familiar to the new and the unfamiliar clear?

And, again, I want to call your attention to the absolute necessity of knowing what is called for in the second proposition that we considered at our first session; because if that is not known, there is no certainty that you will ever be of any earthly use to your pupils in making that relation known. Further, until you have found out what is in his mind, there is no certainty of your helping him to see that relation.

Now, I take it that these are some of the maxims, some of the truths and some of the principles that are not always applied. And as I said early in this discussion, it is not so easy to apply them as to think and talk about them.

I am a believer in the value of the maxim as a starting point. When so used it steadies or focuses the attention.

In discussing these different questions I have not attempted to keep them entirely separate. They run together.

I want to refer briefly to the statement of Professor Hewitt with regard to school management coming before the psychology. I believe he is right in his statement that, for an understanding of much that is essential in school management there must be an understanding of some things in psychology. There seems to be a pretty firmly fixed notion that is steadily growing, that really about the only place for most of the subjects in the Normal school course is in the senior year. That idea is steadily developing. But is not this true, fellow teachers, that in order to have a psychological principle understood on which you are to base either a maxim or a mode of procedure in a single phase of school management, it is not necessary to study a several-volume psychology, nor to put five or ten or any number of weeks upon it? Is it not entirely feasible and possible to teach only what psychology is necessary in order to the illustration of your ideas upon management?

If that psychology is essential to your teaching your school management, you cannot teach without it, can you? As Professor Hewitt says, proposition II determines what must be known for the mastery of this phase of school management, and when the teacher has formulated that definitely with reference to any particular phase of school management, or with reference to any other subject, then he has before him the field of knowledge which must be mastered in order that this work can be done. I want to suggest to you that there is an excellent opportunity there for some fine intellectual work, and I do not see how you can possibly teach either your school management or anything else without doing that. And when that is determined, then I should say to Prof. Hewitt, or anyone else who is laboring under the difficulty that he is laboring under, if these pupils have not the preparation that he would like to have them have, he is to determine for himself, clearly and definitely, what he is to do with them in that field of psychology under those conditions. I understand what the difficulty is. Prof. Hewitt will at once say: "I am expected to teach so much of school management in so many weeks and I have a right to ask certain preparation." Well and good. But if the preparation has not been made, we have to take conditions as they are and do the best possible under those conditions. That same thing applies in your science work. The science teacher would like to have his subject come last. Most of the teachers would, and for very excellent reasons. The teacher of chemistry will tell you why some knowledge of other sciences is very desirable for his work. The teacher of any one science would find it very desirable if his students had certain knowledge of other sciences, but they do not have it. What is he going to do? Have the course of study changed? He would if he could. But he cannot, and he must do the best he can. What is the best he can do? He must settle for himself this: "In order to teach what I have to teach, what must be known by these students?" And that settles definitely and clearly what essentials must be known. When that has been done then he has this proposition: I have settled what must be known, and I must teach it, because if it has to be known my purpose cannot be accomplished until it is known. When you come to this thing which needs to be known before you can make further progress, teach it or have it taught by somebody else. If you cannot teach it, get the teacher who can to come in. I want to tell you that when you have submitted the case to this analysis, you will reduce the amount of those things which must be known very materially, and it will not take a great while to teach them, and right there, my friends, it seems to me is the valuable thing in the whole doctrine of correlation. There is no rational correlation except as between things essentially related, and any attempt to do more is simply lugging in extraneous and foreign matter which has no place there; and its only result is "confusion worse confounded."

Again, the second and third propositions settle for you every time what is the correlated truth or knowledge that applies here; that is needed here; and when you have settled that you have a standard by which to determine what you shall attempt to correlate, and do not need to take someone else's say so for it.

I do not know but what I am wandering away from this particular topic, but I think not. I am trying to discuss this question: What

shall be done first in order to apply these maxims, truths, or principles? As a general proposition it seems to me that this is true: That before I can apply any common maxim, any common truth or any common principle which is pedagogical in its nature, my first business is to settle the scope and content of it; to see what is in it; to see what its application ought to result in; to study the conditions of the people to whom it is to be applied; and then work out the problem: How can I so apply it as to produce the required results? You will say that that has to come as a matter of years of practice, of experience; but what we are trying to do is to see if we cannot hasten the process a little; we are trying to see if by careful thinking we may not save time and effort for ourselves and for our pupils; to see if we cannot make this an art rather than an accident, this teaching work of ours.

Take the maxim relating to the subject of "Attention,"—what can I do to secure on my own part the power to apply this in order to get the attention of my pupils? And there is no greater problem in school management than that. Sometimes we spend more time on inverting the divisor and seeing that that is understood than we do on how to train this power of attention on the part of the pupils. We ask fifty questions about the best way of inverting the divisor where we ask one about the best way to develop power in training attention. Perhaps the reason is that nobody can tell the best way. Again, there is not any best way that applies to all individuals alike. That is what makes it a difficult problem for the teacher. There is a changing, varying set of conditions, necessitating a varying adaptation to meet them. But the teacher who would solve this problem for himself, who would undertake to develop this power of applying these maxims, truths, and principles relating to attention, must study the question: What are the kinds of attention? Under what conditions do we get the one or the other? Can a teacher do anything to develop involuntary attention? That comes as a result of interest. Then the inquiry works along this line: How can I awaken interest so that this involuntary attention must follow? What am I responsible for doing in shaping the environment of the pupils? What are the conditions of involuntary attention?

I must settle the conditions under which voluntary attention comes about. Then what can I do to see that those conditions obtain on the part of my pupils? What can I do to control and remove adverse conditions?

I have a fixed purpose, and I first go to work to determine what is the knowledge that I must have to enable me to realize that purpose, or what must be done in order to its realization. And then I make a further analysis to determine what I now have and then undertake to master the other. Then I have solved the first phase of the problem,—knowing what needs to be done. Not fully, not completely. The very first effort to do this or that may show me that I need to do something more than I have planned and then I do what more is needed.

This process of work, this line of preparation, is the one which is applicable in every phase of this work of determining how I can apply these pedagogical truths in my teaching. How can I train my pupils to apply in their teaching these pedagogical maxims, truths and prin-

ciples? We can never feel sure that they will. It is not altogether certain that they will, but we may do this: We can call the attention of these pupils of ours to our own application of these pedagogical principles. We should challenge them to tell us what maxim or truth or principle is being applied today,—not at all times, but frequently enough to develop the habit of attending to this professional work, to develop an inquiring mind. The student is learning. The teacher, if he be a teacher, is ever learning, and so the student should acquire today as a student in the Normal school this habit of constantly trying to develop a further knowledge of his art.

I should have enough of this work done to bring into the consciousness of these pupils the fact that I, the teacher, am putting into application in my classes from day to day the essential pedagogical truths which I have taught them or which have been taught them by others. I should give them such training as would enable them to determine those truths, and as a result, I should hope that before they left me or the Normal school they would be able to determine whether or not I was right in applying any given pedagogical principle; whether I was applying what I ought to apply. As a result, if carried out, not by one teacher, not by the supervisor of practice alone, or by the teacher of pedagogy, but by every teacher in the Normal school, I should expect that pupil when he went into his practice work to be conscious of the fact that he was applying pedagogical principles. You will say that this is a terribly uncomfortable state of mind to be in. It is not half so uncomfortable for the other people as it is for him to do unconsciously the thing that ought never to be done. But mark you this: If he has had this kind of training on every hand as he goes through the Normal school, that consciousness, while it may be an embarrassing thing in the presence of his practice class, will be infinitely less embarrassing than though he had had no such training. I would carry that far enough to develop a habit of thought, a habit of mind and of action, and out of that action would come a freedom from restraint and freedom from this consciousness of work to be done in a particular way.

I would first have all of the teachers in the Normal school determine, if possible, what pedagogical truths and maxims are important and ought to be applied. Second, I would have them stated in detail and understood by teachers and students.

I would go still further and study the larger problem: What is demanded when I make an effort to get these students of mine to apply these pedagogical maxims, truths and principles. When I had studied that out I should have it put into practice in every department of the Normal school; a consciousness on the part of the teacher that teaching was being done in accordance with pedagogic law; a consciousness that should come into the student's mind, re-inforced by his study of these questions, by questioning the teacher, or criticizing the teacher, until there should come to be a mental habit on the part of the student, a habit which would pass into a habit of action. I believe in that way we may secure very much better results than it is possible to secure when only two or three people in the institution are doing that work.

Mr. Salisbury—By what means may the students be made conscious of the teacher's applications of the truths, etc.? The pupil cannot be

made conscious of the application of a maxim until he has been made conscious of the maxim. The people in the elementary course, in the first year, would not come under this proposition.

Mr. Harvey—Yes, they would. I should have the students in the first year learn one maxim at any rate, and then I would have that applied and have them conscious of its application.

NOTE.—The committee which was appointed to consider and report upon the papers and discussion of psychology and educational maxims subsequently submitted the following report which embraces the conclusions of the authors of the papers and the participants in the discussion, and it is judged that the report fairly answers the purposes of the institute in this behalf.

REPORT OF SPECIAL COMMITTEE ON PSYCHOLOGY AND PEDAGOGY.

The Committee to whom was referred the discussion on the essentials of psychology and pedagogy as related to teachers in Normal schools, after due conference and such deliberation as the time permitted, would report as follows:

1. All teachers in Normal schools, of whatsoever subjects, should possess and habitually exhibit a practical, conscious acquaintance with the fundamental principles of educational psychology and of pedagogy, and such an apprehension of current pedagogical maxims as will enable them to properly appreciate their true meaning and their limitations. They should also have an intelligent familiarity with the latest and most authoritative statements of the end and meaning of education.

2. The following outline is not offered as an exhaustive or scientifically exact statement of what belongs to educational psychology, but only as a concise recapitulation of those principles which are most vitally related to the business of education and with which every teacher should have a practical, as well as theoretical, acquaintance. These propositions are submitted as, in our judgment, suitable to form the core and basis of professional instruction in the Normal schools so far as this rests on psychology. We assume that most, if not all, pedagogical principles are applications of psychological principles. We have accordingly arranged the matter of our outline as follows: first, psychological principles; second, related pedagogical principles, with some corresponding practical maxims or apothegms.

GENERAL CONSIDERATIONS.

I. All teachers should have a clear conception of what education really means. We may state its end as "complete living," "self-realization," or "character building," but to little purpose unless the full and true content of these phrases is clearly apprehended. We commend to attention the definition of education by Thomas Davidson as the "evolution of a social individual in intelligence, sympathy, and will."

II. All teachers should know that the spirit of the teacher is the

most important factor in his professional development and power. They should realize:

(1) That the most important qualification of a teacher is admiration for and cultivation of noble character. Manhood is the only safe foundation for this profession. We in some measure assume the qualities we admire.

(2) That the teacher must have unfaltering faith in the efficacy of education,—a thorough belief in the Kantian doctrine that man can become man only by education.

(2) That the teacher must have unfaltering faith in the efficacy of a large and, especially, a well organized supply of teachable material, including enough of logical sense to distinguish between inductive and deductive reasoning and their proper applications. We can teach only what we know, and we must know how to teach what we do know.

(4) That the teacher must ever seek to acquire greater teaching power. He who is not a constant learner cannot be a good teacher.

PSYCHOLOGICAL PRINCIPLES, PEDAGOGICAL PRINCIPLES, AND MAXIMS.

I. Mind and body constitute a partnership. Mental activity is conditioned by brain activity, which is modified, in turn, by general bodily conditions, among which are nutrition and fatigue.

Pedagogical Applications.

(1) The school must take due cognizance of the child's physical condition as regards sense defects, important epochs of physical development, and temporary indispositions.

(2) The program should be so planned as to recitation and study periods and succession of various subjects that the pupil's powers may be duly exercised without excessive fatigue.

(3) The school must furnish suitable conditions for work, such as good ventilation, proper temperature, and light, desks adapted to the pupils, and proper school materials. In addition to the above may be mentioned quiet, industry, and independent work.

(4) "A sound mind in a sound body is a short but full description of a happy state in this world." *Locke.*

II. Mental development is due to the constant interaction of (1) hereditary characteristics, and (2) the various factors of environment which the mind selects from the complex whole.

Pedagogical Applications.

(1) The school must proceed on the assumption that, in the main, all human minds have like fundamental tendencies and yet that each has its own individual characteristics.

(2) All subject matter, and the method of teaching, must be such as will appeal to the Normal pupil and, at the same time, not fail to find points of contact in each individual, whatever his peculiarities may be.

(3) The school must, so far as possible, surround the pupil with such an environment, physical, social, and spiritual as will secure the realization of his highest possibilities.

III. All activity, physical or mental, gives rise to certain modifications which tend to persist and form the basis of habit. The extent and permanence of such modifications depend largely upon brain plasticity and nutrition on the one hand, and thoughtful attention on the other.

Pedagogical Applications.

(1) A chief function of the schools is the formation of right habits in the early years, the forestalling or elimination of bad habits, and the strengthening of good habits already formed.

(2) "The great thing in all education is to make our nervous system our ally instead of our enemy. For this we must make automatic and habitual, as early as possible, as many useful actions as we can, and guard against the growing into ways that are likely to be disadvantageous to us, as we should guard against the plague."

James.

(3) It should be remembered, however, that habit has a double tendency. With one hand it offers freedom and with the other it brings slavery, not simply the slavery of bad habits but the deadening and narrowing effect of mere use and wont unillumined by quick appreciation of changing circumstances. The individual should always retain the power of *rehabituation.*

IV. The mind develops only through its self-activity. Knowledge and discipline can not be inherited or transferred from one mind to another, but must be acquired and developed by one's own activity. Any power of the mind grows strong by the activity of that power against appropriate resistance.

Pedagogical Applications.

(1) "The child attains to knowledge not by receiving it, but by *taking* it. He instructs himself. The teacher is the guide, co-operator, and remover of obstructions only." *Laurie.*

(2) The several powers are developed by occasioning the natural activity of each. "Exercise strengthens faculty."

(3) The pupil's preparation should be independent of assistance from other pupils. Thinking is individual. Partnership study results in lack of concentration, of self-reliance, and of mental assimilation. The pupil who is true to his own interests will not allow another to help him in preparing his lessons.

(4) The recitation is the pupil's opportunity to prove to teacher and classmates his loyalty to his calling, his trustworthiness in the discharge of duty.

(5) The recitation is for the exclusive benefit of the members of the class and each member should be allowed to reap the benefit. The pupil, not the teacher, should do the reciting.

V. The unfolding of the mental powers proceeds in a definite, natural order from infancy to maturity.

Pedagogical Applications.

(1) All educational means and measures should harmonize with this natural order of development. This is a vital consideration in the arrangement of courses of study. All teaching should be adapted to the capability of the taught, both in matter and method.

(2) Every new movement of mind presupposes all the prior movements and carries them with it.

(3) Appeal to the instincts as they ripen: "Strike while the iron is hot."

VI. The original data of the mind, the raw materials on which all the intellectual powers must exercise themselves, come into consciousness through sense activity. The advance to rich images and concepts is through clear and abundant precepts.

Pedagogical Applications.

(1) "In early years, let there be no interference with the freedom of sensation, but rather encourage contact with all forms of existence, and promote the natural activity of the child in every direction."

Laurie.

(2) The primary ideas in all branches of knowledge must be taught objectively in all grades of school.

(3) Give the idea before the term and make the connection sure. If the term is given before the idea make it the starting point for the development of the idea and make the connection sure.

VII. Attention, the indispensable condition of all mastery, follows the lead of interest, and is steadied and given purpose by it. Interest is aroused by a proper relating of the novel and the familiar. Voluntary attention sets the mind to the performance of a given piece of work; involuntary attention holds the mind to the work.

NOTE.—Interest is *feeling*, any form of feeling which calls forth the effort of attention.

Pedagogical Applications.

(1) Attention, or the concentration of mind activities, is a fundamental condition of acquiring knowledge and power and skill.

(2) The activity of the mind at any moment is exercised in the direction of its dominating interest; therefore teaching can not be successful in the highest degree unless the interest of the learner centers in the subject under consideration.

(3) Fickleness of attention is natural to the young and immature, but in older and more mature persons it is a sure sign of weakness and should receive careful treatment.

(4) "Interest is the mother of attention, attention is the mother of knowledge, if you would win the daughter, make sure of the mother and the grandmother."

But attention may also become the mother of interest.

(5) The mind acquires more readily and permanently under the stimulus of pleasurable feelings.

VIII. Development, intellectual, emotional, and volitional, proceeds through the interpretation of new experiences in the light of those past experiences which have been assimilated.

Pedagogical Applications.

(1) All teaching involves the proper relating of new material of knowledge to what the mind has already appropriated. To the new by means of the old is the law of learning; and the same is true of emotional and volitional development.

(2) Understanding comes by relating the new and unfamiliar to the old and familiar. The mind moves step by step from old to new. Each new relation established enhances the value of both old and new. This makes science or related knowledge. An isolated fact or an isolated lesson plays no part in the development of the mind.

(3) A knowledge of the contents of the learner's mind relative to the subject to be presented and of the knowledge necessary to its mastery is essential to successful teaching.

(4) The teacher should see that whatever capital the child has on hand is put to use. The net balance of to-day becomes the live capital of tomorrow. This principle holds true throughout experience and underlies that set of principles to which belong,—from the familiar to the unfamiliar; from the indefinite to the definite, etc., all of which indicate a movement that mind can not evade.

IX. The mind's power to recall past experiences when needed, the contents of consciousness from moment to moment, and the creative power of the imagination are all dependent, in great measure, upon the suggestive power of ideas, or, in other words, the principle of association.

Pedagogical Applications.

(1) That mental efficiency which follows the power of ready recall, is dependent upon breadth of association, the number and variety of relations established between the items of our knowledge.

(2) "Bind new facts to other facts by relations of similarity, cause and effect, whole and part, or by any logical relation, and we shall find that when an idea occurs to us, a host of related ideas will immediately flow into the mind."

Halleck.

(3) "Enrich your teaching with as many relevant associations as possible."

Laurie.

(4) "In teaching, repeat and re-repeat, revise and re-revise; and be always falling back on elementary facts and principles relative to the subject of instruction, so as to maintain the series of associations."

Laurie.

X. Sense experience, though fundamental, is necessarily narrow and has relatively little value until taken up and recast by the cognitive imagination, which gives our knowledge its widest extension.

Pedagogical Applications.

(1) "Imagination is the spiritual power to which all instruction turns, and upon whose co-operation the success of all instruction depends. The pupil apprehends the words of instruction only when his imagination succeeds in illustrating them by corresponding images."

Lindner.

(2) "Philosophers may be right in affirming that we can not transcend experience; but we can at all events carry it a long way from its origin. * * * * * Newton's passage from a falling apple to a falling moon was, at the outset, a leap of the imagination."

Tyndall.

(3) Imagination is the great instrument by which we "proceed from the known to the unknown;" it must therefore be brought into play in all fruitful acquisition.

XI. Abstraction and generalization are the fundamental elements in all thinking; without them there can be no general knowledge, no science. They are the basis of all definition and all classification; but, like imagination, they depend on experience for their data. The advance to rich conception is through clear and abundant perception.

Pedagogical Applications.

(1) "It is a chief business of education to pass from distinctly perceived individual notions to clear general notions."

Pestalozzi.

(2) The most difficult step upward is from perception to conception, from particulars to generals. This step can never be made short. Therefore, at this point the teacher needs great skill and the pupil great patience. Here scientific method first manifests itself.

(3) The complete method of instruction is inductive-deductive, it involves not only the ascent from the particular to the general, but also a return from the general to particulars.

XII. Language is not merely the necessary instrument for the communication of thought; but it is also an indispensable auxiliary to thought itself. Created by thought, it in turn develops it, aids it and defines it, and lightens the burden of intelligence.

Compayre.

Pedagogical Applications.

(1) "Language is an appeal to the ideational consciousness of another." Nothing absolutely new can be put into the mind of another by language; it can only excite the mind to construct ideas of its own.

(2) "He who is intelligently analyzing language is analyzing the processes of thought, and is a logician without knowing it.

Laurie.

(3) Language is abstract and has its limitations. One of the most serious of these is the danger that words may become *substitutes* for ideas. Another danger lies in the liability of the teacher to deceive himself as to how well he is understood.

XIII. A sensory stimulus or an idea is incomplete until its motor tendencies have found expression of some sort. This expression clarifies, intensifies, enriches, and makes concrete the original experience, giving it significance and permanence.

Pedagogical Applications.

(1) "There seems to be a general law in the universe that impression completes itself in expression, and that the former is incomplete without the actuality of the latter."

Laurie.

(2) The school must provide for adequate expression on the part of the pupils, both in respect to time and variety. Expression through language, oral and written, is of the utmost importance but is not sufficient of itself. Drawing, modeling, sewing, and other forms of manual training are necessary to give full scope to the child's love and need of expression.

(3) "When impressions are passive, that is, do not issue in action, they gradually issue in insensibility."

Bishop Butler.

(4) "Seize the very first possible opportunity to act on every resolution you make, and on every emotional prompting you may experience in the direction of the habits you aspire to gain."

James.

XIV. Every state of the mind is a compound of knowing, feeling, and willing, and we name the state from its predominating element. When these are in proper balance, they re-inforce each other; when either one is in excess the others suffer eclipse; but the development of a good will is the consummate result of true education.

Pedagogical Applications.

(1) All the training and instruction of home, school, state, society, and church is for the purpose of supplying impulses and inhibitions for the will or to give direct will training.

(2) Self-control is a sign of will power.

XV. Since feelings supply the strongest motives to the will and largely determine thought as well as action, the formation of worthy character involves careful cultivation of the emotions, both in the way of stimulation and repression.

Pedagogical Applications.

(1) "The training of the moral facultiy in a self-reliant mode of feeling and judging includes the habitual exercise of the sympathetic feelings together with the powers of judgment."

Sully.

(3) The child's interest determine his conduct, and through these He therefore needs to be clearly acquainted with the whole *gamut* of motives, their relative value and elevation.

(3) The child's interest determine his conduct, and through these the child can be most easily influenced whether they are within or

without his school life. The teacher who can enter into some right interest of the child can influence that child to better conduct.

XVI. The acquisition of knowledge is not the only, nor even the principal end of education; but there can be no education without it. "What blood and breath are to the body that, in a larger sense, knowledge is to the mind; it is the means of mind-nutrition."

Pedagogical Applications.

(1) "Appropriate matter for investigation and study, properly presented to the mind, excites the necessary exercise, self-activity."

Putnam.

(2) Teachable materials are far from being of equal value as mental nutriment to all pupils, or at all times to the same pupil. Each stage of advancement and each peculiar condition must be considered in estimating educational values. Unassimilated materials can not make knowledge. Cramming comes largely through the unsuitableness of materials.

(3) The determination of what knowledge shall be presented to the mind for assimilation at a given time, or recitation, must not be left in any degree to chance or accident but should be regulated by fixed principles of procedure, viz.:

Prop. 1. The teacher must have in mind a definite purpose, or purposes, to be realized in the recitation.

Prop. 2. He must have in mind the things which must be known, or the steps which must be taken, in order that the purpose may be realized.

Prop. 3. The teacher must determine what of these thing the pupil now knows or can do.

Prop. 4. He must thus determine what of the things indicated under Prop. 2 the pupil still has to learn or do, and the order in which they should be known or done.

ALBERT SALISBURY,
J. E. LOUGH,
DUNCAN MCGREGOR,
J. I. JEGI,
J. Q. EMERY.
Committee.

GENERAL SESSION.

THURSDAY, Dec. 20, 1900.

Forenoon.

Mr. Harvey—The first thing on the program is a paper by Prof. Sage of Oshkosh.

POSSIBLE ELIMINATION OF SOME SO CALLED STRICTLY PROFESSIONAL WORK NOW DONE IN THE NORMAL SCHOOLS.

A. H. SAGE, Oshkosh.

Professional knowledge and professional spirit can not be superimposed upon an untrained mind. To force theories of teaching a sub-

ject upon an individual who is still struggling with the fundamentals or to whom the fundamentals are so new or nascent as to lack congruity and repose in his mind is not simply absurd, it is impossible of successful accomplishment. It is an accepted doctrine that professional training in any field should follow such academic and experimental training as will fit the mind first to comprehend and appreciate the principles and practice of the profession and then to make an intelligent application. But as regards the particular profession of teaching, it seems to be assumed that the order may be reversed or at least that both processes may be carried on at the same time. Let us put the question directly in the following form: Can a student successfully or advantageously undertake the consideration of a subject from the point of view of a professional before he is thoroughly master of the subject and before he has had such training as will give him a capacity for and appreciation of the philosophy of the work presented? I shall not assume that any teacher of experience could possibly answer these questions otherwise than in the negative. Yet it seems that in our course as at present arranged we are doing this very thing and that the manner in which we are attempting it is supported by neither reason nor pedagogy.

We are striving too much to make professionals and too little to make teachers. The principal or superintendent of schools should be a professional; those who do the teaching in his schools should be teachers. One is a science, the other is an art. It is quite possible to have a good superintendent, one possessed of the finest professional knowledge, who might be a complete failure as a primary teacher; and it is equally easy to find fine primary teachers who have almost no professional knowledge. To more than 90 per cent. of our students, professional knowledge counts for little in practice and almost nothing in their anticipations of future usefulness. Their whole concern and interest lie in the direction of the art of teaching, not in the profession. We should know then whether it is the function of the Normal to prepare professionals or practical teachers. If we are preparing professionals, then the more professional review and training classes we have the better, in order that the student may have a clear general idea of the general method and theory of all that belongs to the school curriculum; but if we are preparing practical teachers, then it becomes our duty to give the student not all the theories and methods that have been devised for teaching every subject known to the art, but rather to give him a knowledge of how to teach something, or some few subjects so that his training will be such that he may have ideals within himself and actually be within himself a model below which he will be ashamed to fall. It is the same old question: Will you try to tell the student every thing he should know or will you make him such a master of a few things that he may become master of many? Will you teach to give him quantity of knowledge, or will you teach to give him power over all knowledge?

The teacher should have such a conception of teaching as will make poor teaching impossible. This will not come from having heard a great deal about every subject in the curriculum but from having taught at least one thing supremely well. But in practice, we haul the student over the entire professional field first in his general theory work under the heads of psychology, observation, theory of teaching,

and history of education; and then proceed to carry him over the whole field again in painful detail in an endless chain of professional reviews, and all of these under as many different teachers, few of whom either know anything about or have anything effectual to say about the actual application of the theories presented when the student comes to his practice in teaching, and most of whom have never had any experience in applying their own theories under such circumstances as the student must face in his future work.

This attempt to teach all that the wise-acres know about teaching is professionalism. But that kind of work in itself has little to do with unfolding, educating or evolving a teacher. It rather tends on the whole to prevent such a consummation. "Jack of all trades and good for nothing" would be an appropriate label to place on every Normal graduate were it not for the supremely beneficent law of nature which makes it difficult to stop a man from thinking for himself even when gagged and blindfolded by his superiors. A single question will reveal the whole fallacy of our present practice of making the student go through the grind of six to ten professional subjects in two years. It is this, What one of you, taking simply the theories and principles set forth in any professional review subject with which you are acquainted, could go out into the public schools and make a success in teaching that or any other subject on that basis? You may attempt to escape the question by saying that you would expect to think for yourself and to make such adaptations of pedagogical principles to the work in hand as circumstances might require. Certainly. That means that you have brains and sense and do not need to be told in detail everything that the professionals think should be done. It means that your success will depend not on whether you have been told beforehand *why* corn grows in one place and cotton in another instead of *where* these products grow, but that success depends far more surely on whether you are alive to the *problem of teaching*, on whether your ideals are high, on whether you are determined to teach in all respects as well or better than you did in some excellent work you did at the Normal, on whether you aim to teach as well or better than those who taught you because that teaching convinced you by its success and efficiency, and on whether you have by diligence and continued study and application secured such a hold on the art or actual practice in some line that you have the *art within your self* to apply rather than a dozen note books full of theories from as many different sources.

The future teacher's success will depend not on whether he has had all the methods, devices, and theories of education, nor on the vast array of professional reviews he has covered in as many five or ten week periods; but on whether he knows how to conduct a recitation; whether he has acquired skill in the presentation of knowledge and in the art of questioning; on whether he has ideals back of which he is ashamed to go; on whether he has acquired such appreciation for the practicability of pedagogical principles as will ensure his following them and practicing them.

The situation may be somewhat imperfectly described as follows: The student enters his first professional review class with preconceived notions brought from his experience as a pupil in other schools and perhaps from some experience as a teacher. Onto these experiences has been grafted his theory of teaching studied as a science. For the

first time in his life his experiences, the science of education, and the theory as exemplified in the special subject under professional review are brought together to be harmonized and reduced to an intelligent working basis. He doubtless makes an earnest effort to do so. By the time his eyes are opened and he begins to wonder whether there is any thing in it or not, the term closes and he is passed on from say, professional arithmetic to professional music perhaps. Here quite a different set of principles and ideas are held up for him to contemplate. He may have absolutely no aptitude for the work, may be fully determined never to attempt any thing in that line, may not even be able to tell one tune from another. No matter, he must go through the grind. From music he is piloted through a ten weeks' course in professional English. What can he do in ten weeks with such a subject? Just begin to realize that the subject is worth considering; but lest he should possibly get some real lasting, workable impression made on him, he is hustled out of this important and fruitful field to hear still another teacher propound the philosophy of gymnastics, wherein about all that counts, rests on the same principles he had in physiology, except such as should have been definitely and specifically pointed out to him at the very time he was getting his own gymnastic exercises. And how about his professional arithmetic and music in the mean time? Well, he has them all in a note book. But so far as having gained a working basis is concerned, he knows little and, by this time, cares less. This process is continued through eight or ten professional reviews, in none of which is there a slightest chance for him to get down to such a consideration of the question of teaching that or any other subject as will give a certain faith in the principles of pedagogy because he has made them work or seen someone else do it or because he has gained an appreciation of the relation between the philosophy of teaching and the practice of it.

Finally, it may be observed that as the student goes from class to class, he generally finds the academic teachers nearly or quite ignoring the fact that they have anything to do but teach the subject, and the atmosphere of the class such as to detract from his application of the professional aspects of the work.

In a nut shell, then, let me sum up. (1) Satisfactory professional work can not be superimposed upon an untrained mind, nor advantageously pursued by a student who is still struggling with the subject matter in the academic sense. (2) As 90 per cent. or more of our students will become simply practitioners in the art of teaching and not real professionals, it is neither wise nor expedient to attempt in so short a time to give them an assured professional knowledge of all the branches to be taught. (3) The student and prospective teacher instead of getting an inspiring and highly satisfactory appreciation of the principles and theories pertaining to his chosen work, rather gets the idea that the whole business is a matter of speculation and difference of opinion among those supposed to be best qualified to make use of these principles if anybody could. He proceeds from a state of earnest expectation at the outset to one of dissatisfaction and sometimes disgust in the end. (4) With certain subjects specially labeled "professional review subjects" the student absolves himself from all allegiance to pedagogical principles in all classes not so labeled and his teachers too often do likewise. (5) The professional review subjects are so num-

erous in his brief course and therefore so superficial that excellent work in some important senses can not be done. (6) Every student with some unimportant exceptions is required to go through the same professional course no matter what kind of work he intends to do in the future and no matter what his aptitude for a given work may be. The future high school principal, the primary teacher, and the prospective teacher of gymnastics all go through the same tread mill and come out with a diploma cut to exactly the same length. (7) There is no place or point in his course where the student gets any more forcible idea of the application of the principles of teaching than those embodied in the expression, "Hustle and get into the next professional review class, for you have got to do ten of these grinds before you get that diploma." (8) Nowhere in his course is there a dignified, sustained consideration of any subject, following the student right into his actual teaching and giving him such an opportunity to test his theories then and there as will convince him of the value of a study of pedagogical principles. (9) And finally, there is little or no harmony or unity of action between the professional review teachers and the work in the practice department so that the philosophy in one reinforces the practice in the other.

In view of these defects in our Normal school arrangement of professional work some of which will be conceded by all those interested and all of which may possibly be admitted by some, I submit the following suggestions looking toward correction of the difficulties:

(1) Every exercise and every class in every academic subject in the normal school should be a lesson in the theory and art of teaching, so far as this is consistent with the fact that the student's first business in an academic recitation is to get the subject under consideration.

(2) The number of strictly professional review subjects required of the student in so brief a course should not exceed three and these should be pursued for at least 20 weeks each with practice teaching in the same subject during the second ten weeks. These subjects should be strictly professional, i. e., should be devoted from first to last to the study of the principles and philosophy of teaching as applied to the subject under consideration, and should be based on a good academic knowledge of the subject.

(3) The teacher of the professional subject should have a due responsibility in the success or failure of the student who during the second ten weeks mentioned undertakes to put in practice what he has learned and discussed in the professional class, and should follow him closely into his practice teaching and determine the merits of his work in conjunction with the director of practice.

(4) The president of each Normal school should have the power and privilege of determining within reasonable limits, after consulting the aptitude and reasonable prospects of the student, what particular professional classes he shall enter.

(5) And lastly, professional work in English, geography and arithmetic should hold first place in order of importance with the great mass of prospective grade teachers.

NOTE.—It seemed to be the general opinion, revealed by the discussion, that the strictures of Prof. Sage were the outgrowth of familiarity with one school, rather than a complete knowledge of all the schools.

EXPOSITION OF THE LESSON PLAN, AS APPLIED TO THE TREATMENT OF A TOPIC.

C. E. PATZER, Milwaukee.

COURSE OF STUDY IN GRAMMAR.

UNIT I.

Aims—

a. To have pupils recognize and define a sentence and its parts, subject and predicate.

b. To have pupils recognize and define nouns, pronouns and verbs.

UNIT II.

Aims—

a. To have pupils learn that the meaning of a noun may be modified by an adjective.

b. To have pupils learn that adjectives may be either simple or many-worded.

UNIT III.

Aims—

a. To have pupils learn to recognize and define adverbs.

b. To have pupils learn that adverbs may be simple or many-worded.

UNIT IV.

Aim—

To have pupils learn to recognize and define transitive, intransitive and copulative verbs.

UNIT V.

Aim—

To have pupils learn to recognize and define prepositions.

UNIT VI.

Aims—

a. To have pupils learn to recognize and define conjunctions.

b. To have pupils learn to classify sentences according to form.

c. To have pupils learn to distinguish between phrases and clauses.

UNIT VII.

Aim—

To have pupils learn that nouns, pronouns and verbs change their forms to express difference in number.

UNIT VIII.

Aim—

To have pupils learn that pronouns and nouns change in form to show their relation to other words.

UNIT IX.

Aims—

a. To have pupils learn that pronouns and verbs are inflected to express difference in person.

b. To have pupils learn the declension of the personal pronouns.

UNIT X.

Aims—

a. To have pupils learn that verbs are inflected to show difference in time.

b. To have pupils learn the meaning and formation of the tenses of the indicative mode.

c. To have pupils discuss the meaning of other verb phrases of different modes and tenses.

UNIT XI.

Aims—

a. To have pupils learn that verbs are inflected to express difference in the manner in which the action may be regarded.

b. To have pupils learn to classify sentences according to meaning.

c. To have pupils learn that the form of the verb may show whether the subject performs the action or whether the subject receives the action which the predicate expresses.

UNIT XII.

Aim—

To have pupils learn that adjectives and a few adverbs are inflected to show a difference of degree.

UNIT XIII.

Aim—

To have pupils summarize what they have learned in regard to the inflection of nouns, pronouns, verbs, adjectives and adverbs.

UNIT XIV.

Aim—

To have pupils recognize and define interrogative pronouns and interrogative adjectives.

UNIT XV.

Aim—

To have pupils learn to recognize and define demonstrative pronouns and demonstrative adjectives.

UNIT XVI.

Aim—

To have pupils learn to recognize and define indefinite pronouns and indefinite adjectives.

UNIT XVII.

Aim—

To have pupils recognize and define relative pronouns and relative adjectives.

UNIT XVIII.

Aim—

To have pupils learn some of the essential qualities of participles.

UNIT XIX.

Aims—

a. To have pupils learn some of the essential qualities of infinitives.

b. To have pupils learn to distinguish clearly between infinitives and participles.

UNIT XX.

Aims—

a. To have pupils name the parts of speech that may be used as connectives.

b. To have pupils classify phrases and clauses.

c. To have pupils name the different kinds of modifiers of the subject.

d. To have pupils name the different modifiers of the predicate.

e. To have pupils name the different kinds of complements of the predicate.

UNIT XXI.

Aim—

To have pupils classify and define sentences.

UNIT XXII.

Aim—

To have pupils summarize what they have learned about nouns.

UNIT XXIII.

Aim—

To have pupils summarize what they have learned about pronouns.

UNIT XXIV.

Aim—

To have pupils summarize what they have learned about adjectives.

UNIT XXV.

Aim—

To have pupils summarize what they have learned about adverbs.

UNIT XXVI.

Aim—

To have pupils summarize what they have learned about prepositions.

UNIT XXVII.

Aim—

To have pupils summarize what they have learned about conjunctions.

UNIT XXVIII.

Aim—

To have pupils summarize what they have learned about verbs.

UNIT XXIX.

Aim—

To lead the student to summarize laws of syntax governing number forms of pronouns, verbs and nouns.

UNIT XXX.

Aim—

To lead the student to summarize laws of syntax governing case-forms of nouns and pronouns.

UNIT XXXI.

Aim—

To lead the student to summarize laws of syntax relative to the choice of adjectives and adverbs.

UNIT XXXII.

Aim—

To lead the student to summarize laws and suggestions relative to the inflection of adjectives.

UNIT XXXIII.

Aim—

To lead the student to summarize laws of syntax relative to tense forms of verbs.

ILLUSTRATIVE DAY PLANS TO TEACH THE UNIT "CONJUNCTIONS."

C. E. PATZER, Milwaukee.

SUMMARY OF WHAT PUPILS KNOW OR HAVE DONE BY THE TIME THE UNIT "CONJUNCTIONS" IS REACHED.

1. Definitions.

1. A sentence is the expression of a thought in words.
2. Every sentence consists of two parts, a subject and a predicate.
3. The subject names that about which something is said.
4. The predicate asserts or declares something of the subject.
5. A noun is a word that names something.
6. A pronoun is a word that stands for a noun.
7. A verb asserts or declares something about a person or a thing.
8. A word which modifies the meaning of a noun or pronoun is called an adjective.
9. A group of words used as a simple adjective is called a many-worded adjective.
10. The adjectives "the," "a" and "an" are called articles.
11. An adverb is a word used to modify the meaning of a verb, an adjective or an adverb.
12. A many-worded adverb is a group of words used as a simple adverb.
13. Verbs are divided into two classes, complete and incomplete.
14. Verbs are complete if with the subject they give a complete meaning.

15. Verbs are incomplete if they need a noun, pronoun or adjective to complete their meaning.

16. Incomplete verbs are either transitive or copulative.

17. A transitive verb is one in which the action is said to "pass over" from the subject to the object.

18. A copulative verb is one that simply joins together a subject and a noun, pronoun or adjective.

19. The complement of a transitive verb is called its object.

20. The complement of a copulative verb may be a predicate noun, predicate pronoun or predicate adjective.

21. A preposition is a word used with a noun or pronoun so as to form a many-worded adverb or adjective.

22. A noun or pronoun used with a preposition is called the object of the preposition.

23. A preposition with its object is called a prepositional phrase.

24. Prepositional phrases may be divided into adverbial and adjective prepositional phrases.

II. They have analyzed every sentence accompanying units 1, 2, 3, 4 and 5.

MONDAY.

I. Aim.

a. To have pupils learn to recognize and define conjunctions, and to classify sentences according to form.

b. To assign the lesson for Tuesday.

II. What must be known or done.

a. They must read the following sentences and observe that each sentence is made up of two sentences:

1. I went to school and Mary stayed at home. 2. Charles was right and James was wrong. 3. John may go or James may go. 4. The boy takes exercise, therefore he is strong. 5. I must seem angry or they will not obey me. 6. Everything went against them, still they fought on. 7. My friend went home today, otherwise you could have met him. 8. The crops failed because the weather was unfavorable. 9. I shall come when I am ready. 10. Little Mary cried because her doll was broken. 11. The night was bright, for the moon was shining. 12. Ere he could speak, his soul had departed. 13. Egypt is fertile because the Nile overflows its banks so regularly.

b. They must pick out in each sentence the word that joins the sentences together.

c. They must know that these words are conjunctions.

d. They must observe that in sentences 1 to 7 the conjunctions join the sentences together very loosely.

e. They must know that sentences 1 to 7 are compound, and the conjunctions are coördinating.

f. They must know that a sentence containing but one subject and one predicate is a simple sentence.

g. They must analyze sentences 8 to 13 and observe that the conjunctions join the sentences in such a way that the one introduced by the conjunction modifies some word in the other sentence.

h. They must know that the conjunctions in these sentences are sub-

ordinating conjunctions, and the sentences introduced by them are called subordinate clauses.

i. They must know that sentences 8 to 13 are complex sentences.

j. They must read sentences 1 to 13 and in eacn case:

(1) Name the sentences of which each sentence is composed.

(2) State whether the sentences are compound or complex.

(3) Name the conjunctions and state whether they are coördinating or subordinating.

(4) State the use of each subordinate clause and analyze each clause.

(5) Analyze each member of each compound sentence.

III. What pupils know or can do.

a, b, d, g under II (to be determined in class).

IV. What remains to be known or done.

a. All of *c, e, f, h, i.*

b. j as preparation for the next day's lesson.

TUESDAY.

I. Aim.

a. To test pupils on the lesson assigned Monday.

b. To have pupils learn other uses of subordinate clauses.

c. To have pupils learn that parts of sentences are often omitted.

d. To assign the new lesson.

II. What must be known or done.

a. The subject matter under *j* of Monday's plan.

b. They must analyze the following sentences and observe that subordinate clauses may be used as adjectives, adverbs and nouns:

14. The house was robbed while the owner was absent. 15. I know when you must go. 16. I saw the place where the picnic was held. 17. The teacher knows why you are tardy. 18. The scar on the bean shows where it was attached to the pod. 19. How he does it is a mystery to me. 20. I did not say that he did it. 21. I discovered where the people are going.

c. They must know that subordinate clauses are divided into adverbial, adjective and noun clauses, and that noun clauses are often called substantive clauses.

d. They must under the direction of the teacher supply the omissions in the following sentences, and then separate each sentence into its component sentences, and point out the conjunctions and classify them:

22. I will do the work or die in the attempt. 23. John as well as I will go. 24. He is poor but honest. 25. Not only the teacher, but the whole school is looking at you. 26. The girl neither played nor sang. 27. Both city and country feel the need of rain. 28. He does his duty whether pleasant or not. 29. My hair is gray, but not with years.

e. They must observe that conjunctions may consist of one or more words.

f. They must know that contracted sentences are often called simple sentences having—

(1) A compound subject; or
(2) A compound predicate; or
(3) A compound object; or
(4) A compound complement; or
(5) A compound adjective or adverb modifier.

g. They must state the exact meaning of each of the following sentences:

(1) John and I will go.
(2) John as well as I will go.
(3) Either John or Henry will go.
(4) Neither John nor Henry will go.
(5) The girl did not play and she did not sing.
(6) The girl neither played nor sang.
(7) The city and country feel the need of rain.
(8) Both city and country feel the need of rain.

III. What pupils know or can do.

a, *b*, *d* and *e* under II (to be determined in class).

IV. What remains to be known or done.

a. *c* and *f* in class.
b. *g* for the next day.

WEDNESDAY.

I. Aim.

a. To test pupils on the assigned lesson.
b. To have pupils summarize what they have learned about conjunctions.
c. To assign the next day's lesson.

II. What must be known or done.

a. *g* under II of previous day's plan.
b. Under the direction of the teacher they must make the following summary of definitions:

(1) Conjunctions join sentences together.
(2) Conjunctions are divided into coördinating and subordinating.
(3) A clause is a sentence used as an adjective, adverb or noun.
(4) Subordinating conjunctions introduce clauses used as adverbs, adjectives or nouns.
(5) Clauses are classified into adverbial, adjective and noun or substantive clauses.
(6) In contracted sentences conjunctions often join parts of sentences and even single words.
(7) Sentences are divided into simple, complex and compound.
(8) A sentence having but one subject and one predicate is a simple sentence.
(9) A complex sentence is a sentence that contains a subordinate clause.
(10) A compound sentence is a sentence made up of two or more simple or complex sentences joined together by coördinating conjunctions.

c. Pupils should read carefully the definitions contained in the text-book under the direction of the teacher, and determine their exact meaning.

d. Pupils should commit the text-book definitions to memory for the next day.

III. What pupils know or can do.

a. *a* under II (to be determined in class).

b. *b* and *c* under II (to be determined in class).

IV. What remains to be known or done.

d as a preparation for next day.

THURSDAY.

I. Aim.

a. To test and drill pupils on text-book definitions.

b. To assign the next day's work.

II. What must be known or done.

a. The definitions contained in the text-book.

b. They must analyze as many of the following sentences as possible in class, according to the following outline:

(1) Classify each sentence.

(2) Name the conjunctions, state what they connect, and classify them.

(3) State use of each subordinate clause.

(4) Analyze each member of a compound sentence and each subordinate clause.

(5) State the exact meaning of each sentence.

30. He worked during his vacation in order that he might earn money. 31. He will receive recognition, for he does his duty well. 32. He is a painter, also a sculptor. 33. The general saw that the battle was lost and avoided further bloodshed by surrendering. 34. After the Americans had won the battle of Monmouth they gained new courage. 35. It is against the law, else I should do it. 36. Washington's men won the battle of Trenton before the Hessians were fairly awake. 37. Unless all signs fail, we shall have rain before night. 38. He died where he fought. 39. Besides being an orator, he is a fine conversationalist. 40. They loved him, likewise respected him. 41. The house where Washington rested can still be seen. 42. The country whence the messenger came was full of strife and discord. 43. The boy disobeyed and was punished. 44. His watch was either lost or stolen. 45. As long as the world exists, Shakespeare's writings will be read with interest. 46. A man deserves respect as long as he is honest and industrious. 47. Though he worked hard, he remained poor. 48. These apples are for you and me. 49. She danced and skipped and ran. 50. He and Joe and Henry will go. 51. Robert Lee was not only a brave soldier, but also a fine scholar. 52. Though often disappointed, he still persevered. 53. Since you will not try you cannot win. 54. Mary and I are sisters. 55. Mary read well, for she enjoyed it. 56. He will neither read nor write. 57. She was at once a great actress and a beau-

tiful singer. 58. The autumn leaves are falling, but the days are warm and pleasant. 59. Since you desire it, I shall look into the matter. 60. Either Frank must go with me or I shall stay at home. 61. You must take care lest you fall. 62. They visited Chicago, New York and Boston. 63. She told you and me. 64. He told the truth, but they did not believe him. 65. He was a poor man, yet he gave alms to the beggar. 66. No man was tolerated unless he was honest. 67. When they learned of its rich mines, the English went into the Transvaal. 69. A republic can be formed provided the people are intelligent. 69. The battle was fought before the general arrived.

c. For the next day they should continue the analysis of sentences according to the outline—say, to number 56.

d. They must review definitions.

III. What pupils know or can do.

a and *b* under II (to be determined in class).

IV. What remains to be known or done.

c and *d* for the next day.

FRIDAY.

I. Aim.

a. To test pupils on the analysis of sentences assigned.

b. To test pupils on definitions assigned.

c. To assign the new lesson.

II. What must be known or done.

a. They must know the definitions.

b. They must be ready to do what was assigned in regard to sentences 41 to 56.

c. They must analyze for Monday sentences 57 to 69.

d. They must run through all the sentences and pick out the conjunctions, and state the class to which each belongs, and state the use of each subordinate clause.

III. What pupils know or can do.

a and *b* (to be determined in class).

IV. What remains to be known or done.

c and *d* for the next day.

MONDAY.

I. Aim.

a. To test pupils on work assigned Friday.

b. To assign the new lesson.

II. What must be known or done.

a. They must analyze sentences 57 to 69, as per assignment.

b. They must run through all the sentences from 1 to 69 and select the conjunctions and state class to which each belongs, and state use of subordinate clauses, as per assignment.

c. They must for Tuesday select from their readers five simple sentences, five complex sentences and five compound sentences, and be ready to analyze each.

III. What pupils know or can do.
a and *b* (to be determined in class).

IV. What remains to be known or done.
c for the next day.

TUESDAY.

I. Aim.
a. To test pupils on work assigned Monday.
b. To assign the new lesson.

II. What must be known or done.
a. They must be ready to do what was called for under *c* of II of previous day's plan.
b. They must answer the following questions orally in class Tuesday, and in writing Wednesday:
(1) Classify sentences, define each class, and illustrate.
(2) Classify and define conjunctions.
(3) Define subordinate clause, adverbial clause, adjective clause, and substantive clause, and illustrate each in a sentence.
c. They must analyze the following sentences, and be ready to state the exact meaning of each:
(1) "Across its antique portico
Tall poplar trees their shadows throw;
And from its station in the hall
An ancient timepiece says to all,—
Forever—never!
Never—forever!"
(2) Half-way up the stairs it stands,
And points and beckons with its hands
From its case of massive oak.
(3) By day its voice is low and light;
But in the silent dead of night,
It echoes along the vacant hall,
Along the ceiling, along the floor.
(4) The princess of his tales was a person of wonderful beauty, for she came from the old illustrated edition of Grimm.
(5) Then one joking wave caught up the ship at the bow, and another at the stern, while the rest of the water slunk away from under her.
(6) If our young men miscarry in their first enterprise, they lose all heart.
(7) Man has not one chance, but a hundred chances.
(8) No man can come near me but through my act.
(9) I like the silent church before the service begins.
(10) Man is his own star; and the soul of an honest and perfect man commands all light, all influence, all fate.

III. What pupils know or can do.
a and *b* under II (to be determined in class).

IV. What remains to be known or done.
c as a preparation for the next day.

WEDNESDAY.

Aim.
a. Written test as per assignment.
b. Oral analysis of sentences, and exact interpretation of thought.

SOME ADVANTAGES OF THE LESSON PLAN.

1. It compels close attention to the aim in each day's lesson.
2. It compels close analysis of the aim which results in a close analysis of the subject matter.
3. It discloses possible shortcomings in regard to the subject matter on the part of the teacher.
4. It compels teachers to recognize the most important principle of teaching. From the known to the related unknown.
5. Attention to proposition III discloses whether the pupil really has the necessary old knowledge or apperceptive material to properly study the new.
6. It necessitates organizing the subject matter for teaching. The arrangement may be logical or pedagogical or a combination of the two.
7. It compels the teacher to determine before the recitation just what he intends to do, what the pupils are to do, and what the assignment is to be.
8. The teacher may not be able, the chances are he will not be able, to carry out each day's work as he planned it. But his preparation will put him in a position to meet any emergency that may arise.
9. It illustrates in a specific way how the inductive-deductive method may apply in teaching grammar. It illustrates also that the inductive-deductive method cannot be used exclusively.
10. It illustrates how the text-book is to be used in grammar.
11. It illustrates how pupils can be led to make a summary of several days' work.
12. It illustrates what is meant by exercising the pupils' self-activity in learning.
13. It illustrates how teaching can be made thorough and practical, inasmuch as it shows how knowledge may be transformed into power and skill.
14. It illustrates what is meant by making learning easy and attractive.
15. It illustrates how each day the pupils accomplish something definite, and how at the end of a unit or subject they may carry away the essentials in a permanent form.
16. It illustrates how close analysis of subject matter and attention to propositions III and IV suggest method of procedure.

DISCUSSION OF FOREGOING LESSON PLANS.

C. E. PATZER, Milwaukee.

As an outgrowth of the four fundamental propositions a fifth, namely, method, may be considered. Method is implied in or suggested by the four propositions. It can never be dissociated from the teacher. Every teacher insists as his right on the exercise of individual freedom, even caprice in teaching. Any general method or scheme of teaching which tends to blot out individuality must be condemned. Teachers should not be reduced to automatons. Is there anything in the four propositions that is opposed to the exercise of individuality? Just the reverse is true. They conduce to greater freedom. When a teacher knows his subject, has analyzed it and looked at it from all points of view, and has thought through his method of approaching the new, he is in a position to permit his personality to come into play. Such a teacher then becomes unconscious of method. He may or may not follow exactly the plan as conceived in his preparation. When he stands before his class and permits the play of mind upon mind a higher method born of his mastery of the subject and his personality, and styled by some the technique of instruction, will take the place of the paper method. The higher living method cannot well be described. Nor can it easily be imitated.

The teacher who attempts to describe his individual method is constantly hampered by the thought that he is not doing justice to himself. And yet the teacher who is asked to state just how he will proceed in a given recitation, though he is met by what he considers insuperable difficulties, nevertheless will strengthen himself by writing down what he proposes to do. To specify what the purpose of each day's work is, what pupils must know or do to reach this purpose, what, in his estimation, of this they already know or can do, what remains to be known or done, and finally, his method of procedure, all lead to definiteness in teaching. The very statement of the aim serves as a guideboard which points in the direction he is going. He may not be headed always towards the right place, but there is some satisfaction in knowing *that he is going somewhere.*

It is possible that in consequence of his attempt to adhere to his carefully prepared plan mechanical teaching may result in some instances. Well, we have had a great deal of haphazard, catch-as-catch-can teaching. A little conscious systematic teaching, even though it smack somewhat of the mechanical, may serve as an antidote. But if this results at all, it will be of a temporary nature.

It was my fortune to be in Germany when Dr. Rein's Herbartian five formal steps were first introduced. I found that they were applied in a very mechanical and conscious way. Teachers labored under the impression that in a given recitation, say, five minutes were to be devoted to preparation, then five minutes to presentation, then five minutes to abstraction and comparison, then five minutes to generalization, and finally five minutes to application. In fact the whole scheme was in danger of collapse until it was found that teachers got away from the formality of the formal steps and made natural and logical application of them. Too much philosophy is sometimes a dangerous thing.

Every method of instruction has elements of the mechanical in it—when put on paper. But as between the Herbartian five formal steps and Supt. Harvey's four (and let us hope eventually five) propositions, the former are the more artificial in the hands of the average teacher. Mr. Harvey's propositions are natural and hence simple. They are not new. We applied them after a fashion long before Mr. Harvey formulated them. They recognize and put into tangible form a principle of teaching as old as the hills. "In teaching proceed from the known to the related unknown," was recognized ages ago as the great fundamental principle. Pestalozzi applied it in Germany over one hundred years ago. Earlier than that in the 17th century Comenius, the father of modern educational thought, recognized and applied it. I have traced it to Rome, the great appropriator of ancient times. The Romans got it from the Greeks, who borrowed it from the Phoenicians, who carried it overland from Babylonia. I have found this world principle in the musty pedagogical archives of that colossal but effete and crumbling empire of the east,—China. We have applied it here in the United States, and so we may say it encircles the globe.

Why is this principle so universally recognized as the great fundamental in teaching? It is because we recognize that the mind must always operate on the new by means of the old, that before the new can be understood it must be translated into elements of the old.

When the new is reached its formulation as a summary or generalization enables its easy retention. In securing the generalization the steps may have been clearly marked or not. It depends on how the minds of the pupils work to get the general truths. It is a difficult thing to distinguish clearly between different operations of the mind. *We must bear in mind that the mechanism of teaching must always be considered subordinate to the child.*

This important truth was brought home to me some years ago in a teachers' meeting in Manitowoc county. I was at that time impressed with the idea that the rule for division of a fraction by a fraction should be taught by the inductive-deductive method. I was on the program to exemplify the method of reaching that rule. In anticipation of that event I made careful and exhaustive preparation. At the meeting I found a class in Middle form work upon whom I was to practice. The little people knew me and hence we soon established that pedagogical bond of sympathy and affection so essential to proper teaching. I proceeded from step to step in so logical and natural an order that I believed the pupils would be made to feel that they were in the presence of a new truth without divining the intermediate steps by means of which it was impressed so unconsciously upon their inner- or subconsciousness. I got along beautifully, and when I had traversed about half the road I began to flatter myself upon creating a sensation by making a decided "hit." It came sooner than I expected. Suddenly a little chap called out, with a twinkle in his eye, "Oh, I know how to get the answer. Turn the divisor upside down and multiply."

That settled my pretty scheme. The class had the rule, and I had the remainder of my method,—and a new pedagogical truth, namely, that teachers must be prepared for pupils getting at things in a manner different from their prearranged psychological and logical method of reaching them.

My experience on this occasion cannot be construed as militating

against the fundamental principle, from the known to the unknown. It illustrates that occasionally we may insist on pupils taking minute steps when possibly their minds may be capable of reaching the new by "leaps and bounds."

The lesson plan in the hands of some teachers may tend also to minimize the importance of the text-book and lead to too much oral teaching. In reality, however, if it is properly used it will enhance the value of the text-book by calling attention to its proper use. I am not an advocate of oral teaching as it obtains in Germany, neither am I in favor of having the text-book do all the teaching as is the case in many of our American schools. *Text-books must always be the center of instruction.* But all cannot be used the same way. Most of them are bundles of generalizations, and the process of instruction concerns itself with the question, How best are the generalizations to be reached? Surely this presents a field wherein teachers and pupils should work together as preliminary to the text-book study.

The intelligent application of the four propositions offers the golden mean between the purely oral and purely text-book method of teaching. Mr. Harvey's scheme makes teaching definite and thus saves time. It is based on well established psychological principles and above all on common sense. Its mechanism is simple. It appeals at once to the experienced and inexperienced teacher. It breathes the "breath of life" into the principle, from the known to the related unknown, and makes the pupil a learner, and the teacher an instructor, an educator.

GENERAL SESSION.

Friday, Dec. 21, 1900.

Forenoon.

Mr. Harvey—The first thing on the program and the last formal paper is by Prof. Adrian, of River Falls.

RELATION OF DEPARTMENT TEACHERS IN NORMAL SCHOOL PROPER, TO WORK IN THE MODEL SCHOOL.

H. A. ADRIAN, River Falls.

The general trend of sentiment, both in the section meetings and the general sessions, would seem to mark this as a very opportune time to suggest the formulation of some definite plan to secure closer co-operation between the various departments of each Normal school and a more uniform administration of the courses of study in the several schools.

That there is a pressing need of a closer and more vital relation between the Normal school proper and the model school needs no more urging than it has already had. The lack of it in any organized way in every one of our Normal schools was clearly shown either by the positive statement or the contradictory evidence of the replies received from the various members of every faculty, in answer to a circular letter of inquiry. Most of them directly asserted that the heads of departments were seldom consulted by the model teachers and exercised no real directive influence over the work of the model school.

Of course in every Normal school certain model teachers talk over the work with some special friend in the other departments, but this does not affect the truth of the general statements with which I shall open this phase of the discussion.

These are: 1st. That the heads of departments have practically no voice in determining the work of the grades, whether academic or professional, and no directive influence in carrying it out.

2nd. That "consultations" as now held are very nearly barren of results and that the relation between the Normal proper and the model grades is really but little closer and more vital than that between the public schools and the Normal.

Of course the feeling does not exist among Normal faculties as it often does among children, that "everything is all right in our back yard and all wrong in yours;" so it will not be deemed out of order to point out some of the weak places in our present practice which I have discovered by correspondence.

Supervisors of practice are constantly impelled to complain that the theories of the Normal departments do not conform, even in essentials, to the practices of the model grades, and the heads of departments are continually regretting that the methods and subject matter of the model grades differ so widely from their own. For instance: The professor of mathematics rules out certain subjects in arithmetic as unnecessary, while the model teacher insists upon their being presented by the practice teacher; he condemns a certain method as obsolete or wasteful only to have it proclaimed to the same students by the supervisor as gospel. This must of necessity result in confusion and a consequent weakening of impressions.

Many public school principals, who are making the manual of the course of study for common schools the basis of the work in their lower departments, are surprised to find that the graduates of Normal schools employed by them know so little about this guide upon which so much time and talent has been expended.

It is not an uncommon thing for practice teachers to be selected to take charge of a class with little or no reference to their knowledge or aptitude in that particular branch, because everybody must have practice and in as many branches as possible,—seemingly forgetful that the children have any rights in the matter.

So many students must have classes to practice upon that the children often recite continuously all day long, with a consequent weakening of overstrained recitation powers and a lack of opportunity to form the habit of hard study, which is one of the most vital things in school life. This same necessity for many classes for practice teaching relieves the model teacher almost entirely from the conduct of classes and prevents the supervisor having much opportunity to do actual teaching; and no person, however skilled, can do the most effective work without constant practice, not in seeing but in doing himself, nor can he enter into the best relation and the most effective sympathy with the practice work of the students.

The energy of teachers and pupils is wasted in aimless wandering and useless repetition, and the minds of student teachers confused by the conflict of theories and the irreconcilableness of practices.

Unrelated groups of subject matter, warring theories and diverse

methods cannot possibly combine to produce unified results which must necessarily be the aim of the Normal school.

There is often but a vague understanding among the model teachers of precisely what body of knowledge is to be presented in each grade and a lack of unity in relating these various elements.

These, then, are a few of the weak points which present themselves to my mind. Others will be brought out by the discussion. What the remedy is to be will no doubt also be indicated by the discussion, but I desire to suggest a few characteristics which it ought to possess.

In the first place it should give much greater unity of purpose and of work throughout the whole Normal school system. This may, I think, be brought about by the making out and enforcing of a complete course of study, uniform for all the Normal schools, based upon the manual outlining the work from the primary grade to the senior year of the diploma course. Yes, I know each Normal has one already, and a synopsis of it is given in each catalog, but they bear about the same relation to each other and to a complete system that the patches on Rip Van Winkle's clothes bore to each other and to the whole suit. Each particular patch was all right, of good quality and the shape any color were satisfactory, but when they came to be tacked together by Rip, there were some glaring missfits, to say the least.

And then the good work should be carried further than a mere uniformity and unity in course of study, and a complete and comprehensive syllabus of the minimum work for each grade should be made out which shall get at the essentials. There is certainly a definite body of knowledge to be presented in each grade and the outlining of this in the form of a syllabus would not be an impossible task. In a general way the method of presentation could also be indicated, at least so far as the "four fundamentals" of teaching are concerned.

If the plea is made that this uniformity will crush out individuality and cripple originality, we have but to point to the splendid results which this same rigid uniformity has brought about in elements so varied and diverse as are presented in the institute problems of our state. A good many gloomy prophecies were made of the dire results that would follow the enforcement of such a plan in the institutes, but the difficulty of locating any of these prophets at the present time makes it impossible to give a revised version of their predictions.

The making of the course of study must of course be done by the Board of Regents and the administration be vested in the Presidents, but the making out of the syllabus, except as to general directions, should be the work of the head of the proper department, the model teacher and the supervisor of practice, working with the President. The head of the department is, or ought to be, a specialist in his subject as well as a man of broad training and wide experience in the public schools and capable of teaching children. All of his knowledge and skill and the fruits of his experience can be brought to bear in outlining the work, and in a broad way in determining the method to be used.

The model teacher is expected to have special aptitude for grade work and much fruitful experience which fit her to render indespensible aid in adapting the work to existing conditions. The supervisor with all the diverse elements of the problem well in hand will be able to relate and unify the various parts.

The one who conducts a professional review certainly should be in a

position to occasionally see some of his pupils as student teachers putting his theories into actual practice in the model grades, and under his general direction they should apply the principles he has laid down to the actual problems of that particular subject. An assisting supervisor of practice has just told me of a professional review in grammar which she conducted in the Normal proper, on the plan of making the work a review of the subject matter, and a complete exposition of the methods to be used in the model grades; so that those who were presenting it in their model classes could put it directly to the test of actual practice. The results she reports as being surprisingly excellent, both in the professional review and in the practice work—far superior to any she had before conducted, and the results in the practice classes far more effective. The Normal teacher, who, because of his close relation with the work in the grades, has constantly in mind that his students are to teach in the model school, will shape his teaching more and more to that end, which is the true end. Such a course of study as has been indicated, interpreted by the proper syllabi, would correlate the various subjects and articulate the different grades with each other, thus very materially reducing the temptation to wandering and repetition and eliminating the vital differences of method in the various parts of the school.

It would make the work not more machine like, but less so. It would unhorse the hobby rider in some of his wildest charges at least, and it would help to level down ridges and fill up ruts by widening the tires of eacn fellow's method wagon. It would compel every teacher to a wider range of contact in his work and broaden his view of every problem. All this would react upon the practice teacher in producing similar results, and thus give to the model grades, and later to the public schools, a stronger and better class of teachers.

Lack of time for the heads of departments is, of course, the most serious obstacle. Even as it is at present, one hardly has time to get acquainted with his family, to say nothing of keeping up with the movement of thought in the world at large and in his own department in particular. There ought to be such an increase in the teaching force as to permit the carrying out of the plans suggested.

It should not be a question of how big an attendance can be secured, and how large a class can be graduated, nor should it be a question of how small a faculty each school can be run with, but how shall the most effective work be done, to the end that the best possible teachers may be supplied to the public schools of Wisconsin.

All of the Normal schools should stand solidly together in the demand for an increase in the instructional force of each school sufficient to carry out the work, and not pull for each particular one. Such a course must necessarily impress the Board with the notion that each school is pushing only for something individual, when the pushing should be in the common cause.

By way of summary we may reduce this topic to the "four fundamentals."

I. Aim. To secure closer relation among all the departments of each school and among the several schools.

II. What must be known or done.

a. We must know thoroughly the conditions that now exist.

b. We must work out a more complete course of study for all departments and all schools.

c. We must formulate syllabi of the work in each subject for each grade of all departments.

d. We must give each head of a department a direct influence in the corresponding work of the model schools.

e. We must find out how to secure an inrcease of the instructional force of all the schools to make the above possible.

III. What we already know or can do.

We know all of *a*, have done something of *b*, and *c*, experimented a little with *d* and have done almost nothing with *e*.

IV. What remains.

To get what we want and get it as soon as possible.

PART II.

SECTION SESSIONS.

SECTION SESSIONS.

DRAWING.

Leader, E. W. Walker, West Superior.

AMOUNT AND KINDS OF CONSTRUCTIVE WORK WHICH SHOULD BE DONE IN CONNECTION WITH DRAWING—PURPOSES AND METHOD.

HARRIET CECIL MAGEE, Oshkosh.

Self-activity is the law of life. In the human race childhood is the period of greatest activity. To direct and train this activity is the privilege and duty of everyone engaged in the profession of teaching.

That teachers of drawing have great opportunities for doing this is self-evident. The abounding energy of every healthy child, the latent creative force existing in every human soul manifests itself in one of two ways,—it builds up or it pulls down,—it constructs or it destroys. It always appears in one of the two forms, construction or destruction. The impulse in each case is the same. It is mental activity finding adequate expression.

A child never really knows a thing until he has turned it over into terms of his own activity. He does not know it until he has done it. Expression reacts upon impression and reinforces the mental image. This brings us at once to the second part of the subject,—"Purpose and Method of constructive work which should be done in connection with drawing." It is necessary to consider this *first*, and *second* the "amount and kinds" of such work.

The purpose of all constructive work in connection with whatever branch it may appear is—

(a) To vitalize thought.

It is the first form a child tries to give to mental content. No matter how vague the content may be it is vivified and made real to the child only when he gives it form. This he does with his hands before speech is possible. He builds his blocks one upon another for a house to dwell in; or converts his mother into a horse as he totters across the room, holding her apron strings. In a multitude of forms he works out his ideas long before he reaches the school age. Is it right to change his methods when he enters the school? Is there any reason whatever for changing them? It would certainly be doing our Wisconsin educators injustice to suppose that they do make this change and attempt to eliminate constructive work from the state schools. Yet a superficial observer, and even one who looks a trifle below the surface, may almost reach this conclusion. But I think that the lack of constructive work in our schools is due rather to lack of time and compe-

tent supervision than to disbelief in its educational value. It is one phase of the new education that has not been seriously considered and emphasized throughout the state. In fact, no phase of art education (and art is a dominant factor in the so-called new education) has received adequate recognition or support in the state of Wisconsin. The work even in our Normal schools is seriously handicapped by the brief time given to the whole subject and to the lack of necessary appliances. The great majority of our graduates go into graded schools where they are expected to give instruction in drawing of some kind. And these graduates have had far less training in the subject than in certain phases of science, literature, German and Latin, subjects in which they are never expected to give any instruction whatever in the grades. I think we are losing sight of the three R's. There is a much greater demand for the teaching of drawing in our schools now than ten years ago; yet in our Normal course less time is devoted to the subject than was given ten years ago. The advance in our work is, however, going on. We are striving to keep abreast of the times, but it is only by making almost superhuman efforts.

The ideas of the old education are still dominant in the minds of many Wisconsin educators. They seek for impression through the eye and ear only; and for expression through spoken and written language only. The difference between this and the demands of the new education may be illustrated by the following diagram which I use with my own students in professional drawing (see blackboard).

(b) Psychologically the signs of power are accuracy, strength, speed and ease. Constructive drawing promotes each of these. It trains in accuracy and at the same time in attention to a remarkable degree. It is well to give constructive exercises to any class of children especially lacking in these two qualities, for there are phases of art education inclined to so much freedom of expression that without due care and watchfulness on the part of the teacher habits of inaccuracy may result. If a supervisor finds such a condition induced by long practice in free sight work, it is well to change the work of the class and give a few weeks' discipline in construction. Constructive drawing deals largely with the will side of the child, while free-hand drawing deals more with the feelings. For rapidity and ease in drawing the will must govern the muscles and they must respond promptly to its dictates.

(c) The connection of work in constructive drawing with the common industries is also an important factor to be considered under the head "Purpose." It is one to which the attention of the most thoughtful and progressive art educators is turning at the present. Creative power is sought for in every art industry of the day and that which helps to foster and increase this power is necessarily important to the proper education of the American youth. But it is not in the province of my paper to discuss this question, and we must consider that which was placed first in the topic: "Amount and kinds of Constructive Work which should be done in connection with drawing."

If this refers to the character of the work undertaken in our Normal schools, I must say that a sufficient amount and variety of kinds of constructive work must be done by our students to enable them to teach that which should be taught to children in all grades. If drawing has not been taught below the high school, then the work planned for the 7th and 8th grades may be given in the high school. If drawing has

been taught below the high school, then it goes without saying that a supervisor is employed who will teach in the high school and supervise the grades below, so that the graduates of our Normal schools, who may be called to fill hign school positions, will not be required to teach advanced work in constructive drawing. If they are, however, they can supplement their knowledge of construction with their knowledge of geometry and do fairly successful work.

The constructive work in connection with drawing in the grades falls under the following heads:

(a) Building—With common objects, with models.
(b) Clay Modeling—Animal forms, fruits and vegetables, models, decorative forms.
(c) Paper and cardboard work—Development of surfaces, patterns, objects, geometric forms, familiar forms.
(d) Drawing—Surfaces, patterns, working drawings, constructive designs, plans, problems necessary to above.

The work given under problems should be such as to prepare the pupils for elementary geometry, and when properly taught does do this surprisingly well.

The amount of time spent on constructive work in the grades is from one fifth to one fourth of the school year. Clay modeling is done in the spring and fall terms and instrumental drawing in midwinter when there can be little nature study.

In the Normal course it is not necessary to spend so large a proportion of the time upon this work as some of the results desired have been already attained by adults and the geometric side has also been mastered in the study of geometry. However, enough attention must be given to the subject to sufficiently impress the student teacher with its importance and to enable him to teach the amount required by the children in our model departments. But the trouble is that when our students leave the Normal schools as graduates they have been already a year out of practice and are not so well fitted to teach the subject as at the close of the third quarter of their junior year. There should be some provision made whereby our students might have in the last quarter of their senior year, a review of the work in drawing with some additional practice in lines of work in which they were most defective.

Under present conditions the amount and kinds of constructive work done in connection with drawing must be meagre in the extreme. There is not time to give even a few exercises in the different kinds of work mentioned. In some cases the students are simply told about the work, shown the work of the children done under the teaching of a practice teacher, with no more training than they are receiving. There should be a department of manual training in each Normal school and the work in that department and in the department of drawing should be so related as to produce the best results in each. Until this is brought about, or more time is given to the whole subject, I cannot see how the work in construction can be scarcely worthy of the name.

A. VALUE OF BLACKBOARD SKETCHING BY TEACHERS AND PUPILS.

B. HOW AND TO WHAT EXTENT SHOULD IT BE TAUGHT IN THE NORMAL SCHOOLS?

LUCY DORRIT HALE, Milwaukee.

These questions will be considered in a little different order from that in which they occur here, for this reason:

The value to the pupil will be discussed before its value to the teacher, so that the consideration of the points under (b) will come directly after the latter. For the points under (b) will mostly relate to the professional training of the Normal school student,—"the teacher to be,"—and these points will closely relate to the uses to which the teacher will put his blackboard sketching.

To my knowledge, the blackboard is not much used for drawing by pupils in lower grades of the average school systems. However, for five years I have encouraged its use in the low grades of the schools of the city with which I have been connected as supervisor of drawing. Either the blackboard work is or is not suitable for the child during his earliest days at school.

As you all know, the muscles controlling the larger movements are developed first. The child moves his leg before he wiggles his toes. That is foundation enough to justify the use of a large surface; and a free medium, like the crayon, needs no justification among drawing teachers. There is no position for drawing equal in its allowance of freedom to that of the child at the board, his body free, and his arm free to move from the shoulder. This freedom not only insures the forming of habits of free movement for mediums used later, but assists in producing truthful representations of the mental images of the child. His attention is not distracted by the management of his medium, and there is not an obstacle in the way between the mental content and the graphic representation. Beyond a doubt the same pleasure in consciousness of power and confidence to trust it, come to the child under these conditions that come to a mature mind that has discovered its own power to express in construction or representation, and these experiences that give pleasure are the door-openers of the child's education. And again, there are such things as muscular or "touch images" of form, and motor images of contour, which are more easily expressed by free muscular movement, with no distractions connected with the use of the medium, than by the use of the pencil, clay, or brush, which mediums involve a drawing on a much smaller scale, farther removed from the size of the muscular and motor images.

If you have had any experience with grade pupils you will realize that habits formed during the first two years of school are very hard to overcome later.

A child sees mass, not outline. Don't you know how in the days gone by he drew his little two-inch models and then blackened them? Now the work at the blackboard, if done with the flat crayon, gives the child full scope to represent by mass or outline, as he chooses.

In an ideal community of any kind, the individuals forming it are

given equal rights. Suppose a teacher asks a class to draw on paper a picture to tell the story of Red Riding Hood's journey to her grandmother's. The teacher has not time to comment on or even appreciate all the little pencil drawings in the presence of the pupils; but if illustrated work of that nature is done on the blackboard, each child tells his story in picture language, not only to the teacher, but to all the members of the community, or school. The child, too, likes an audience, and recognition of his effort, and if it is true "What we amount to may be measured by the use which we are to others," is this desire not commendable and does it not give rise to a feeling for democracy that is desirable as an attitude of mind, each standing on the merits of his ability, conditions apparently the same for all? And for purposes of criticism or suggestions, the blackboard furnishes a surface that is seen by all during the criticism.

May we not conclude from these points in favor of blackboard sketching, that it is of great and specific use to children? and also that it should be the child's first drawing, continuing to some extent throughout of his school life?

One more thought and we will discuss the use to teachers, and that is concerning the lack of use of objects in blackboard sketching, which necessitates imaginative work, and great training in the power to visualize. We have worked too much with models, analyzing and comparing, and not enough from the child's experiences and environment.

Of what use may blackboard sketching be to teachers? It is true, is it not, that the blackboard, as a surface for drawing by the teacher, has been somewhat in the background in the past? And why is this? It may not be true of Wisconsin, but it is of Mass., Minn., and Indiana, where I have had knowledge of schools. I truly think it is largely because of the inability of the teacher to use the crayon quickly and with sufficient accuracy. That inability arises from lack of mental images with which to work, and lack of skill with the medium, the crayon.

Blackboard drawing has been somewhat in disrepute, too, in some quarters, because of its abuse. The stencil fiend, and the colored-crayon vender are to blame for that, largely. Work from those sources is too crude and inartistic, when something more vital and harmonious can be put in its place. Of course crayon mass work isn't likely to represent masterpieces, but it is not ugly, shocking, or necessarily inartistic.

The statement of our purpose yesterday placed us all on the side favoring the use of drawing in connection with other studies, drawings to supplement the images in the mind as the result of sense perception of real things. The blackboard is the chief place for such illustrating, because of its size, position and the ease with which it lends itself to rapid suggestive work, especially where the mass method is employed.

You do not need further proof of the use of blackboard sketching to teachers. Doubtless you didn't need this. But you would like to know where the time is coming from, and what the scope of the work should be. In order to have it of use it must have back of it a mind full of cecal images, a mastery of the medium, and practice, which alone can give skill. Right here let me say a little in reference to what was hinted at yesterday, to the effect that the usual training in drawing fitted students to do blackboard illustrating in connection with other studies: Perhaps any student can copy an illustration after outline or mass method, but he might want fifteen minutes to do a poplar tree.

He might be able to represent homes of primitive people, but he might require half a dozen books, and as many hours in which to produce the desired effect. But it seems to me that we want ability to do this illustrating quickly and in the presence of the class. As I said before, that necessitates a supply of images, a mastery of the medium, and practice.

As to how it should be taught in the Normal school, no one can say conclusively, but under existing conditions I have been teacning it in connection with the pencil and brush work done each week. When we have had nature work, as trees and compositions of trees, we have done the same kind of work at the blackboard, and so on through light and shade of models and objects, making use at the board of the mental images gained through the direct study in pencil of these things. The work on the blackboard in this way gives drill on the forms studied, the principles governing the appearance of which underlie the representation of all which one would wish to draw in connection with other studies. I have done this in the twenty weeks courses, giving two days of each week to blackboard drawing, but in forty week courses, two of which we have, an entire quarter is to be given to it. This quarter's work gives not only the practice in the use of the medium, but a review of all that has previously been taken in appearance of objects, nature work and composition. On this foundation should be added a store of images or suggestions for and practice in drawing, such things as will help in the presentation of other subjects. These must come from representations of things in many cases, but their representation by the teacher must come with so much ease and freedom that the teacher will feel confident. This condition can grow only out of practice.

In conclusion: The need of blackboard sketching is evident, the conditions necessary to teach it are not beyond us, and a little time given to it produces large results. Its place as a part of our Normal school course can hardly be disputed on reasonable grounds.

REPORT OF LEADER.

The section met as provided in the program, and proceeded at once to a discussion of the papers previously written by members on the topic "What should be the purpose, scope, and plan of work in drawing in the Normal schools." It was agreed, at the outset, that if some formulation of purpose and scope could be devised on which all could be united, the plan might well be left to the individuality of the teacher making it out. Hence the discussion centered wholly upon purpose and scope. The afternoon was devoted to working out the first of these, and after considerable discussion it was agreed that the first and most important purpose in teaching drawing in Normal schools is to enable the Normal graduate to teach more effectively all other branches, as well as to be a teacher of drawing. As a secondary purpose it was agreed that the cultural phase of the drawing work should not wholly be lost sight of. No formulation of these purposes was made, and a committee was appointed to formulate them properly as stated, and also to formulate the scope of the drawing work. The chairman appointed Miss Hale of Milwaukee, Miss Hughes of Whitewater, and Miss Morse of Superior, as the committee. At a subsequent special meeting, the committee's report was unanimously adopted as follows:

Purpose. The purpose of the work in drawing in the Normal school should be, first, to strengthen the teacher in his power to present all subjects, and at the same time to make him an efficient teacher of drawing in the grades; also to lead him to an appreciation of the educational value of drawing in the public school.

Second. To so train the student that he may realize through personal benefit received from this subject, the culture value of drawing.

Scope. To realize the above first stated purpose, the scope of the work in drawing in the Normal schools should be sufficiently broad to cover all kinds of manual expression coming under the general term "drawing in the public schools," including especial attention to graphic illustration in the teaching of other subjects.

The student should possess the necessary knowledge of the principles upon which elementary art is founded, to teach the same to children in all grades below the high school. In addition drawing in a Normal school should be studied pedagogically. The Normal graduate should know the psychology of the science and art of manual expression. He should understand the relation of sense impression to manual expression. A realization of the second phase of the purpose is best attained by means of a well founded, broad, and suggestive plan for the work which is indicated in that part of the scope which corresponds to the first phase of the purpose.

Plan. It was not thought wise by the committee, in fact it seemed impossible to formulate any definite plan of work in drawing for all of the Normal schools, since the conditions in the different schools vary so greatly. However, the committee is united in urging that all plans of work in this subject be based on the four fundamental propositions formulated by State Superintendent Harvey.

The following preamble and resolution were unanimously adopted:

Whereas, Many students enter the Normal school with no knowledge of drawing, and, whereas, it is impossible to fully realize the purpose of this study because of the lack in preparation of a large number in every class, therefore be it

Resolved, That it is the sense of this section that a limited amount of drawing be required for entrance into the Normal schools, and that a short preparatory course be offered for those who do not have this preparation.

The following preamble and resolution were unanimously adopted:

Whereas, it is the desire of the drawing teachers in the Wisconsin Normal schools to make their work of practical value in the common schools, therefore be it

Resolved, That wherever it may seem practicable to the state and county superintendents, some time be given to the teaching of drawing ing the county institutes, and summer schools of the state.

MARY E. TANNER,
Secretary.

ENGLISH.

Leader, ALBERT HARDY, Platteville.

PURPOSE, SCOPE AND PLAN OF WORK IN ENGLISH GRAMMAR.

ANNA BARNARD, Whitewater.

In discussing this topic, I shall omit professional work in Grammar as that is to be considered by others on the program.

The purpose of grammar is "to make clear the customs, usages and laws pertaining to a given language." We teach it first, it seems to me, for its disciplinary value. The Committee of Fifteen declare it to be the disciplinary study par excellence. They add: "A survey of its educational value subjectively and objectively usually produces the conviction that it is to retain first place in the future. Its chief objective advantage is that it shows the structure of the language, and the logical forms of subject, predicate and modifier, thus revealing the essential nature of thought itself, the most important of all objects because it is the self-object. On the subjective or psychological side, grammar demonstrates its title to the first place by its use as a discipline in subtle analysis, in logical division and classification, in the art of questioning and in the mental accomplishment of making exact definitions. Nor is this an empty, formal discipline, for its subject matter, language, is the product of the reason of a people, not as individuals, but as a social whole, and the vocabulary holds in its store of words the generalized experience of that people, including sensuous observation and reflection, feeling and emotion, instinct and volition." The student in grammar, then, must exercise his power of observation, he must analyze, compare, state inferences, draw conclusions, formulate definitions. Pres. John M. Davis says, "To learn the divisions of the parts of speech and tne sub-divisions of these divisions and so on to the lowest classes that can be formed is an important mental work. The complete classification of adjectives is perhaps the best illustration of this subject afforded by the science of grammar." Prof. Laurie says that power of abstract thought is promoted most directly and effectively "by formal or abstract studies, and this because the occupation of the mind with the abstract is the nearest approach to the occupation of the mind with itself as an organism of thinking."

This leads directly to my next statement, that the pupil should study grammar to acquire the science. It is as Bain says "elementary logic." John Stuart Mill's words are similar: "Consider for a moment what grammar is. It is the most elementary part of logic. It is the beginning of the analysis of the thinking process. Principles and rules of grammar are the means by which the forms of language are made to correspond with the universal forms of thought. * * * The structure of every sentence is a lesson in logic." Hinsdale adds an important fact, "Grammar is indeed the only metaphysical study that a large majority of people ever pursue." It requires the first abstract thinking the pupil is called upon to do.

Grammar is the first of what were called the seven sciences. Indeed, we have the definition—"Grammar is the inductive science of language," The student should acquire this science that he may have knowledge of

the laws of language just as much as he should acquire other sciences that he may know about the earth's formation, about plant life or anmal life.

Thirdly,—Grammar should be taught that the student may have a more exact grasp of the language; that the science which he acquires may aid him to use correct speech, and that it may aid him in interpreting literature.

Whitney, in the preface to his "Essentials of English Grammar," says, "That the leading object of the study of English grammar is to teach the correct use of English is, in my view, an error;"—he considers this a secondary or subordinate aim, but by no means unimportant. He also says,—"Attention to the rules of good usage as laid down in grammars, with illustrations and practical exercises, often helps and hastens the acquirement of correctness in speech; especially in the case of those who have been unfortunate enough to learn at first a bad kind of English." Note the last thought. We have in our Normal school (and I suppose the same is true of others) a large number of pupils who come from faimlies which are foreign, or illiterate, or both. Hence the matter of cultivating in them correct habits of speech becomes of vital importance. This aim should, it seems to me, be ever present in the teacher's mind. To quote Prof. Whitney again,—"It is constant use and practice, under never-failing watch and correction, that makes good writers and speakers." It has been my experience that mature pupils do learn to apply to themselves the principles they are studying and in some degree acquire the habit of self-criticism.

The student should be given a more exact grasp of his language that he may be able better to interpret literature. Prof. Laurie declares this to be the first practical use of English grammar. I should hardly place it first, but it certainly deserves consideration. It is often absolutely essential to understand the grammatical analysis of a sentence in order that one may grasp the thought intended to be conveyed. This naturally grows out of the fact that grammatical analysis is based upon logical analysis. Melanchthon said,—"Scripture cannot be understood theologically unless it is understood grammatically." Often a question as to the construction of one word will reveal the thought to the bewildered reader.

In considering the scope of the work in grammar, we need first to speak of the requirements for entrance. Pupils should, on entering upon their work in the Normal department, be able to analyze easy sentences of all the different kinds; they should know what phrases and clauses are, and their main divisions. They should know the parts of speech and their main divisions. They should know the most fundamental facts concerning inflection; as, the formation of the possessive case. They should be guiltless of the most glaring errors, such as the use of the past tense for the past participle, or the past participle for the past tense; the use of "them" as an adjective; the use of "aint."

At the end of the course the pupil should understand the nature of the judgment, the relation of ideas to the judgment, and he should be able to analyze the judgment. He should know that the sentence is the expression of a judgment in words. He should grasp the thought relation back of the grammatical relation of the parts of the sentence. He should be able to analyze any sentence given him. He should know the complete classification, the inflections and the various constructions

of the parts of speech. He should understand phrases and clauses, their classifications and varying relations. He should know many of our idiomatic expressions. He should realize, to a large extent, the errors to which he is liable and should have already commenced to guard against them; that is, he should have acquired the habit of self-criticism.

Let us now consider the plan of the work. As we are teaching a science to those who are to be teachers, and as we believe in the disciplinary value of the subject, and expect the study to be of practical value also, it seems to me that our watch-word should be "*Thoroughness.*"

The class should have in their hands a good text-book, as that of Whitney, or Mead. Greenwood says,—"For advanced classes, a thorough drill in some good text-book on grammar is absolutely essential to sound scholarship and a critical knowledge of the laws and usages of our language."

We must proceed in this, as in other sciences. "Phenomena must be observed, compared, classified." The pupil must examine language, but he must be able to look back of it to the thought. This means that the student's attention must be directed first to the judgment, as that is the form of thought with which grammar concerns itself. He must learn how the judgment is formed and understand its component parts. From the discussion of the judgment he passes naturally to the sentence, which Prof. Lang calls the "unit" of grammar. Prof. Barbour says that the sentence is the point of departure. Let me quote Samuel S. Green also:—"As a sentence is the expression of a thought and as the elements of a sentence are expressions for the elements of thought, the pupil who is taught to separate a sentence into its elements, is learning to analyze thought and consequently *to think.*"

Having learned that the sentence is "the full expression of a judgment in words," and that "a word is the sign of an idea," the pupil can be brought to realize the correspondence between grammatical elements and logical elements. He sees the real significance of substantive words, attributive words, relation words. He is able to grapple with the difficulties involved in the varying methods of predication. He knows the differing nature of modifiers,—the word, the phrase, the clause. He can next be led to the classification of sentences. As Prof. Lang says, "We shall find four kinds, differing from each other in regard to the mental attitude of the speaker. The emotional attitude gives us the exclamatory, doubt gives us the interrogative, belief, the declarative, and will, the imperative." The pupil should see the force of the structural classification, note the relation existing between the parts of the compound sentence, and grasp the fact that the clause is an integral part of the complex sentence,—"a thought reduced to the power of an idea." A definite model for analysis should be given to the pupil at first. Later, perhaps, he may be questioned on only the difficult points. One third, or one fourth of the time devoted to the course should be given to the above work with sentences.

The pupil will now be ready to pass on to a more complete knowledge of the parts of speech, their inflections, classifications, constructions. There should be an abundance of exercises to illustrate all points. The pupils should be induced to formulate definitions. They should be led to see the force each word has as the sign of an idea. They should il-

lustrate constantly with sentences of their own, given orally or in writing.

I have said the pupil should think, should formulate his own definitions. He often finds in this process, that, if he is accurate, his own definition is almost exactly equivalent to the one his author gives him. This will lead him to appreciate the exact definitions he finds in his text-book, and to rely upon them. The teacher should require him to memorize some accepted definition in every case where definition is necessary. There must be, it seems to me, memorizing of definitions and principles. I agree with Prof. Barbour that rules are never to be committed to memory before their meaning has been clearly understood by the objective study of sentences. But I also agree with Goold-Brown who says, "The only successful method of teaching grammar is to cause the principal definitions and rules to be committed thoroughly to memory, that they may ever afterwards be readily applied." The pupil will more fully realize their meaning as he is called upon constantly to apply them. They will gradually become his very own.

Parsing, in connection with the study of the parts of speech, "has an educational value." Hinsdale says,—"Pupils should be taught the facts and relations that are expressed by inflections and position, and the best way to do it is to require them to describe the words, telling what they are and naming their properties, for that is what parsing is. Observation and reflection are also cultivated." The idioms of the language cannot be studied exhaustively, but some of the common ones should be brought up and explained.

As the pupil studies each part of speech he should note any cautions which are given him as to its use. Such examples of false syntax as are found in the text-book can well be passed over lightly, giving place to errors which come under the pupil's own observation. When the parts of speech are first taken up, the teacher can request the pupil to be on the lookout through the remainder of the course for errors in grammar, both in his own and others' speech, and to make note of them. Towards the close of the course the teacher can call for these lists and have the class correct them. The pupil can thus be led to be on the alert in this matter, the teacher seeing to it that in his criticism of others he has a kindly, helpful spirit. Is it not absolutely essential that those whom we are training to be teachers shall be taught to cultivate an ear sensitive to false notes in grammar? Surely the importance of a high ideal in this matter cannot be over estimated.

While careful training on all points is essential, there are some difficulties of the language which will need special attention. In studying pronouns the double function of the conjunctive pronoun needs special emphasis, as does the double function of conjunctive adverbs. In studying verbs the pupil should have a thorough drill on the nature and uses of verbal words.

The ideal method in all of this work would be to supplement the oral recitation by requiring the pupil to do some written work each day which should be submitted to the teacher for criticism in subject matter, punctuation, spelling, grammar, neatness, etc. This ideal can only be approximated by busy teachers, but blackboard work by pupils, and constant upholding of high standards of excellence in both written and oral expression will do much toward accomplishing the purposes referred to in this discussion.

At the close of the course it would be of great profit to study whole selections for analysis and parsing instead of isolated sentences. Thus the pupil might be led to a realization of the value of the study as an aid in interpreting literature, at the same time feeling with Prof. Tyndall that such drill is "an intellectual discipline of the highest kind."

The work I have outlined would certainly require at least fifteen weeks for its satisfactory completion. But our aid to the pupil should not stop here. Having mastered the principles underlying correct speech and being touched with a feeling of his own infirmities and a desire to acquire greater accuracy of speech, the pupil should, all through his school life, have the benefit of the good example of his teachers and should by them be held to a high standard of oral and written expression in all his studies. It is constant practice alone which will enable our pupils to attain that correctness of speech which should characterize those who are to serve as teachers.

THE PURPOSE, SCOPE AND PLAN OF WORK IN COMPOSITION.

LILLIAN G. KIMBALL, Oshkosh.

The final purpose of the study of composition in a Normal school is to make good teachers of English for the common schools. This purpose should never be lost sight of. It should dominate the method of teaching and be the determining factor in limiting or extending the scope of the work. It is not enough for us that we train students to express themselves well. We must also fit them to teach others to do the same. The habit of thinking clearly and then revealing one's thought in language unmistakable and pure, is excellent, a great end to attain. But the Normal student must attain something beyond this,—he must realize what the process is by which this excellent habit is acquired, he must know the difficulties in the way and be able to give practical assistance in overcoming them; otherwise he may be a good and inspiring example, which is much, very much, but he will fail to be an efficient guide, because he knows only the end, not the way.

In this important respect of training students so that they can teach Composition, the Normal school differs widely from the high school, and so no matter how proficient the high school graduate is in the use of English, it does not follow that he needs no further training in Composition. He knows nothing of the pedagogical aspect of the subject, and yet he must grasp it, for English Composition is taught in every grade beginning with the first; and to teach Composition he must not only practice the principles of the art of communication, but have such a mastery of them that he can effectively impart them to children. In other words, the Normal student must become a good speaker and writer, a discerning critic, and a competent guide. This cannot be too often repeated, too deeply impressed.

Let us see what is involved in this threefold training required by Normal students, and first of all in the matter of mere language. the mastery of words. To speak or write well one must have a wide vocabulary, and this not for the sake of variety, but for the sake of precision

and the truth. To acquire this vocabulary there must be such an extensive study of language throughout the Normal course as will enable students to detect and avoid common errors of speech, and there must be an intensive study of words in word-analysis and the study of synonyms, not primarily to give great store of information about many words, but to develop the right attitude toward language, to inculcate the habit of investigation and of caring to use the right word in the right place. If our students employ words carelessly, if they do not appreciate precision in speech, they cannot teach English well. As teachers they must be critical of spelling and pronunciation, quick to note a word that does not convey the meaning intended, and able to furnish language to the child who says, and sometimes truly, that he knows but cannot tell.

Besides this our students must understand thoroughly from their study of Grammar the structure of sentences, and know how to combine words according to the principles of good usage into well built sentences. If they cannot do this, then the words that form their building material will be as good as wasted. To make good sentences unconsciously because one has had long and intimate association with good writers through reading is enough for the average person, but not enough for the teacher. For he must be able to detect faulty sentence structure in the work of his pupils, and to account for these faults, so that he may lead children to substitute correct forms for them. This power can be developed in our students only by patient, persistent effort on our part, and by much practice in composition on their part under constant direction and criticism.

In addition to a command of language and an understanding of English sentence-structure, we must see that our students get an appreciation of the qualities of style, clearness, coherence, unity, energy, proportion, transition. It is true that it is not possible to say much about these qualities that a child in the grades could understand, but by the aid of simple models it is possible to give a child such a feeling for these qualities that he can grow in his application of them, and ever with more intelligent understanding. Our students will not gain the explicit knowledge of these qualities that they must have as teachers in order to cultivate them in the work of children, unless they are thoroughly presented in Composition, and the practice of them insisted upon in every line of work throughout the course. Language will not be well taught in the grades if taught only in the language classes. We wish our students to become convinced of this, that they may teach language well everywhere and all the time. To this end every teacher in the Normal school should be the assistant of the language teacher. In fact, the teaching of language is something no teacher can escape. He may or he may not teach the arithmetic or the geography that he sets out to teach, but he will teach English by his example and by the ideals that he reveals to students, whether he will or no.

In addition to all that has been mentioned we must teach our students in Composition the details of formal execution of written work, such as paragraphing and punctuation. Here, as elsewhere, we must teach so that our students will be fitted to teach in turn. I do not know that it is possible to teach even punctuation with completeness in a Normal school, but we can at least set pupils on the right track so that they may continue to advance after leaving us. They come to us

with a variety of mistaken ideas, for instance, that punctuation indicates pauses in reading, and that the comma takes the place of a conjunction. We have to disabuse their minds of these false notions, for though they may enable one to punctuate more or less correctly by a sort of blind instinct, they do not serve as a rational or adequate basis for teaching punctuation to children. As to paragraphing, it can best be taught not by theory but by examples. Students must see how and upon what principles good authors paragraph, not in selections from their works as seen in School Readers, where the artificial paragraphs are even in length, but as the authors themselves paragraphed, with here a paragrapn of three lines, and succeeding it one of thirty. Only in this way do students get the courage necessary to paragraph according to judgment rather than form.

All that I have said should be known or acquired by the Normal student, as his equipment for teaching English can only be mastered by him through continuous and conscious application in writing, and so he must have a great amount of practice in the four kinds of discourse,—exposition, narration, description, argumentation. These forms must be so presented by theory, by example, and by practice, that he learns what characteristics each form must have, what difficulties lie in the way of writing each, and how these difficulties may be overcome; and he must know what characteristics are most essential, how they can be presented to children, and in what order. If he does not learn this in a direct way as a part of his professional training, he must get it indirectly through the progressive order in which his teacher takes up points and the method by which she presents them. He must learn from the practice provided for him how extensive and how varied is the practice that he can provide for children, how every line of their school work furnishes opportunity for exercises in written composition as well as oral expression. As it is, he is too often unresourceful: he does not seem to know that he is not limited to stories and descriptions, but that he can teach clearness and continuity of thought in no better way than through exposition, force in no better way than through argumentation. It is desirable that we make manifest to students that both they and the children who are to be under their charge can write out of their own living—their own experiences, thoughts, feelings, knowledge, beliefs, opinions. We do not need to cram either students or children with "Silas Marner," or "The Legend of Sleepy Hollow" in order to extract from them afterward a weak description that is neither an imitation nor an original, a production of almost no language value whatever, but nevertheless powerful to bring on a distaste for composition.

Furthermore, as teachers of composition our aim should be to make our students realize always when they write that they are not merely expressing thought for the purpose of getting something said, but communicating thought, putting it into words to get it into the mind of someone else. The feeling that one has a reader or listener whom he is to delight, or instruct, or persuade, will influence his style to good results more than any other influence we can bring to bear. It will quicken his wit, spur his energy, and give him zest for his work. This is true of children as of students; and because it is true, letter-writing is perhaps the best form of composition to be employed in the grades. Communication is present there inevitably. Besides in a letter all

forms of discourse are possible, and that, too, in the style in which people are called upon to write in life outside the schoolroom.

Thus far nothing has been said of good thinking, but it is of prime importance because it is the foundation of all good writing. The teacher of Composition and of every other subject in our course must insist always upon clear, logical, definite thinking by his students, and partly so that they in turn will not slight this fundamental of all effective communication, when they go out to teach. And we must continually raise their ideals, make them care greatly about clear thinking and about telling their thought with simplicity and directness in the best English at their command. If we do not do this, how can we expect them to care how their pupils think, or talk, or write?

In conclusion I would say that the three most essential factors in teaching Composition in a Normal school so that students may be fitted to teach it in the common schools, are these,—a realization that communication, not expression, is the end of discourse, a good example set by every teacher, re-enforced by selected models from good authors, and abundant practice under "never-ceasing watch and correction," both in composition classes and in every other line of school work.

THE AIM, SCOPE, AND PLAN OF COMPOSITION WORK IN THE NORMAL SCHOOL.

HERBERT E. BOLTON, Milwaukee.

What follows is meant to apply to the composition work done in the advanced courses in Normal schools; that is, to the work done by high school graduates, or by juniors and seniors who have passed through an elementary Normal school course.

I. Aim.

The aim of Normal school work in composition should be both general, or academic, and special, or professional.

A. General.

The first and general aim should be to supplement the work of the high, or other preparatory school in such a way as to secure in every student the ability to express himself in writing with accuracy and facility.

This aim is called general in contradistinction from the professional aim, because it demands training that students must have for intelligent citizenship, and not as a special preparation for their duties as teachers. The kinds of knowledge and ability included in this aim represent, also, simply a minimum amount of knowledge and power indispensable to a profitable study of the professional side of language, that is, training. Negatively, it is believed that under present circumstances there is small place in the Normal school course for scientific rhetoric and higher criticism, such as might be given as preparation for authorship. To give training in these directions is the function of the College. So far, then, as academic training in composition is concerned, the Normal school's aim is lowly, as its execution is uninspiring; but

its thorough accomplishment is, nevertheless, indispensable as a preparation for professional work.

B. Special, or Professional.

The Normal school function proper, in the department of composition, is to prepare the teacher, presumed or known to possess the requisite academic knowledge, to perform those professional duties that fall to him as a teacher. What the teacher has to do with composition, as part of his profession, falls under two heads. On the one hand he has to use written or oral language to convey ideas to a particular grade of pupils. Language here is an incidental means of instruction. Second—he has to teach composition or "language" as a study, to young pupils. The aim of the Normal school instruction, then, if it is to meet these two kinds of professional needs, should be:—

1. To train the prospective teacher in the particular kind of language and composition work which he will most need as an instrument in teaching other subjects.

2. To train him in the best methods of teaching language as a special subject to the pupils under his instruction.

If these statements be accepted, then it follows that under this head not all Normal school students should be given the same kind of work in composition, for different teachers deal with differently developed minds. Indeed, the range is even so wide as from the kindergarten to the eighth grade. The time has come when we differentiate the work in many other subjects,—in history and science, for example,—to suit the various special needs of persons intending to teach in different grades. It would seem that within a somewhat more restricted range the same differentiation is desirable in our professional instruction in composition.

II. Scope.

C.

To attain the aim stated under "A," each student should have the following kinds of knowledge and power:

1. Ability to write a good hand.
2. A usable knowledge of correct grammatical construction.
3. A mastery of punctuation.
4. Ability to arrange work neatly on the page, including a knowledge of headings, paragraphing, outlining, and the notation of outlining.
5. A usable knowledge of common business forms, particularly letter writing, which, in actual life, is the form of composition that the average person is most frequently called upon to practice.
6. A mastery of the elementary rhetorical principles of the sentence and the paragraph, including:—
    a. Unity and coherence in the sentence.
    b. Unity and coherence in the paragraph.
    c. Different methods of developing the expository paragraph.
7. A knowledge of the elementary principles of the structure of the composition as a whole, including:—
    a. The relation of the paragraph to the whole composition.
    b. The order of the paragraphs in the whole composition.
    c. The outline, or plan.
    d. The use of connectives to secure coherence.

e. Unity in the composition.

f. The opening and the close.

In Milwaukee we are able to do this work fairly well in ten weeks, for with some exceptions, the students we get can satisfactorily do much of the work here outlined when they come to us. For such as cannot a longer time than ten weeks is required. It is also found that a few can, at the outset, satisfy all the requirements enumerated. Such are excused from doing this part of the work as soon as this fact is ascertained.

D.

In order to attain the aim under *B I*, the prospective teacher should be given practice in the particular kind of language and composition work that he will most need as a means of instructing his particular grade of pupils. It is assumed that, under *C*, the student will practice expressing his thoughts as an adult person, in language adapted to the adult reader or hearer. But the Normal school graduate deals, as a rule, with juvenile minds. He should, therefore, have practice in a form of expression adapted to such minds. He should have special practice in simple expression. If the students are not differentiated into kindergartens, primary, intermediate, and grammar school teachers, the work should include:—

1. Practice in juvenile description.
2. Practice in juvenile narration.
3. A combination of the two in juvenile story or biography writing.
4. Practice in juvenile exposition writing.
5. Practice in oral description, narration, story telling, and exposition.

In proportion as the students are differentiated into groups preparing to teach in different grades the work under this head should be adapted, as nearly as possible, to the particular grade which each is preparing to teach. As preparation for work in the lower grades, the special work should be largely oral. Perhaps five weeks should be given to this special work suggested under *D*.

E.

At least five weeks should be given to methods of teaching language and composition in addition to whatever work is given in professional grammar. This would seem a minimum amount of time for so difficult and so important a subject as this is. To the extent that it is practicable, the work here should be differentiated as under *D*.

It should include:—

1. A consideration of the aims of language work in general.
2. The aim of language work in each particular grade.
3. The materials which give the best basis for language work in each grade or to accomplish each aim.
4. How to find this material.
5. How to use this material, e. g., how to proceed and what to aim at when a story is to be "reproduced."
6. The relation of language to grammar.
7. The relation of other studies to language instruction.

III. Suggestions on Plan of Work.

No attempt is made here to outline methods of doing the above work. A few suggestions only are made.

1. Within certain limits, all teachers of Normal school students should be teachers of composition and thus supplement the formal instruction in the subject. This can be done by giving students time for careful preparation of incidental written work, in class or out. Written work given by the teachers might be organized so that each student would have regular incidental written work to do in class throughout the Normal school course on certain days in the week. Such a plan would, it is believed, be one of the best possible means of giving practice in composition writing, for it would be practice under most natural conditions.

2. What is said above applies particularly to the work done in the literature class which should not only give practice in writing, but also should furnish models for the same.

3. Above all, it is desired to place emphasis on the importance of individual work with his pupils by the composition teacher. In no other school activity is the student more an individual than in his efforts to express his ideas. He tries, if he writes under proper conditions, to express himself; and he must be allowed to do it in his own way; taking care, in the process of pruning out his inaccuracies and veneering his crudeness, to leave the individual there, after all.

This cannot be done by dealing only with the class *en masse*. The teacher must have time to work with the pupil as an individual. These considerations point to the necessity for a conference hour or conference hours during the school day when much of the instruction must be given. Indeed, it is believed that the greater share of composition instruction can be best given in this way. Another deduction from this supported by common experience, is that to properly instruct a given number of students in composition requires more time on the part of the teacher than to do this in most other subjects, hence the teacher should have smaller classes or fewer recitations than teachers of most other branches.

RHETORIC.

PURPOSE, SCOPE, PLAN.

JOSEPHINE HENDERSON, Oshkosh.

Purpose.

The keynote of the book is the foreword. Of the scores of texts, old and new, on Rhetoric, the purposes as set forth in their forewords can be put into one phrase: to teach how to communicate thought. If the concensus of opinion of the authors of Rhetoric is that the aim of this study is to increase power to convey thought, then the purpose of Rhetoric in a Normal school must be the same, but with this increase in self-power the Normal student should be made aware how he can develop the same power in another.

Judging the English of the Normal students in the state of Wiscon-

sin by the Oshkosh students, I feel sure the greatest good to the greatest number will be secured, not only in our own schools but in the public schools, if training in communicating one's own thought be made "the paramount issue." This will be effective not only in composition, but in teaching also. Furthermore the attiude of the Normal student is such that with little or no digression from the topic in hand, he can be made somewhat familiar with methods of developing thought and, in a slight degree, of the philosophy underlying the forms of expression. This differentiates the work from that in the grades, where as little theory as possible should be given, and from the course in the high school, by broadening what is known, and presents it in a new aspect. If, when students come to this branch, they used English with a fair degree of accuracy and fluency, the main effort could be put upon the more advanced work and the Normal point of view be made the underlying motive. That time is the happy time for which we work and hope. In this connection it is only fair to say that close observation of the English of each entering class shows the standard is being raised, though slowly.

Concentrated effort to establish new ideals of material suitable for themes will accomplish much. So long and so persistently has Rhetoric been taught with English literature, or with English literature as the basis, that every witten exercise is supposed to be a "literary performance." If otherwise, the student thinks his theme trifling or flippant, and he is chagrined when he must read his own thoughts in his own words. His writing is essentially a reproduction, perhaps not a conscious one, but simply one due to the theme and method of preparation. To him there is no real difference between the reproduction of the text in a recitation and creative work in composition. Emphasis on this phase will increase his teaching power. If trained he can find within his own experiences, within his own observation, or in objects at his very hand, material that will help to make clear and vivify his teaching as well as his writing. He will correlate without thinking of correlation. He should see that Rhetoric will help him express his simplest as well as his most lofty thought, and that the form of expression should be adapted to the end sought. What has been said of Rhetoric is true also of the work in composition, but as many students have only the Rhetoric in the Normal school we must make it, too, the point of attack.

The Normal student some day will be a critic. Arlo Bates says that it is a moral duty for one to know why he likes or dislikes a thing. Besides being a moral duty there is no teaching composition without some power of criticism. To train judgment and taste must then be another purpose of Rhetoric.

Scope and Plan.

To say what the scope should be is somewhat difficult. It will depend on previous training and length of course in the Normal schools. Some schools give ten weeks, others twenty, to this study.

No matter what the previous training has been, I have found that the students themselves feel that the best returns have come from a course of three, or at least two weeks in the daily writing of paragraphs. Our work is based on Scott & Denney's Paragraph-Writing and Buck &

Woodbridge's Expository Writing. For theory we use A. S. Hill's Principles of Rhetoric. To make clear the writing is not "literary" we begin with simple expositions. For the remainder of the term two themes a week is the maximum; one original, the other on work in class. Sometimes the student writes instead of talking. The conviction is growing that great good would come if more time were given to oral expression and less to written. To have a course in talking precede the one in writing would give more spontaneity to the writing and deepen the conviction that power in any field will depend in a marked degree on the skillful use of language.

The three weeks of writing are followed by a course in analysis and criticism. This does not give new principles, but a new point of view. The principles used synthetically in construction are now used analytically. The English teacher must see both the obverse and reverse sides. Then, too, he will be forced into the critic's chair. He must know what to let alone and what to better. To prepare himself for judgment of his own work and that of others he studies an effect and finds out on what the effect depends. The plan of work for analysis and criticism is based on Genung's Rhetorical Analysis and Tompkins's Science of Discourse. There is analysis and also criticism of extracts in Swinton's Literature, short poems and an oration. The analysis of the oration is the preparation for the senior oration or lecture, and for the oratorical contest. Would it not seem wise for the teachers of Rhetoric in the Normal schools to use their influence to do away with the old-time oratory, a style which is painfully apparent in our inter-normal oratorical contests; a style which the modern effective speaker does not use? It has been suggested in our school that the perfervid oratory of these contests be superceded by business-like discussions of pedagogical questions. Possibly the golden mean lies between these two extremes.

In this course in Rhetoric I have tried to bear in mind that it should look back to composition and forward to literature, the connecting link. Standing as this branch does, as the last of its kind in the curriculum, it should not present too much of the new, but strengthen the weaker parts, unify the English work of all the courses, and develop the power to criticise at least the technical side of composition so that the great things in literature may be more readily comprehended and more fully appreciated.

PROFESSIONAL REVIEW OF ENGLISH GRAMMAR.

S. A. Lynch, West Superior.

I.

Grammar.

It is assumed that students who take up this course, already have a reasonably accurate and extensive knowledge of the subject matter; and if it is found that they are not prepared to carry on this study intelligently and profitably, they are asked to take up the academic work and to continue that until they are thoroughly ready for the professional discussion of the subject. It is constantly borne in mind that the prin-

ciple purpose of the course is to study how the subject may best be taught; that is, how to unite the logical and psychological phases of the work so as to determine the best methods of teaching.

I. The Purposes of the course are:

1. To discuss the scientific, logical, and psychological principles that underlie the study of grammar.

2. To review what the teacher must know in order to have complete mastery of the subject (within our scope).

3. To consider the educational and practical values of the study of grammar.

II. Scope:

1. The review of grammar is limited to the parts of speech, syntax, and analysis of sentences, not for the purpose of learning technical terms, definitions and facts, but with the thought of teaching the subject.

2. Practice in synthesizing sentences for the purpose of illustrating what is to be taught.

III. Plan:

I. Scientific Phase.

At the outset the difference between scientific and unscientific knowledge is discussed, and students are required to give illustrations of each. It is shown that classification is the distinguishing characteristic of scientific knowledge and the application of this truth to the study of language in general, or of any particular language, is made the starting point for our work.

There are five principles which underlie any scientific study, namely:

A. The material. 1. The accurate and extensive observation of facts and a correct record of such observation.

B. Preliminary method. 2. The discovery of a common element of likeness in many phenomena: the principle of general classification.

3. The discovery of common differences within the classes: the principle of sub-classification.

C. Subsequent Practice. 4. Distribution of new phenomena within the classification already established.

5. Modification of the established classification or invention of new classification in order to gain a more accurate or more convenient arrangement of old phenomena and of new phenomena that will not fit into the previous classification.

In regard to grammar the first step has already been done, to a great extent, by the authors of text-books on the subject. The advantage is that the material is, in most of the work, readily at hand, either in the speech of the pupils, or of the teacher, or, best of all, in good literature. The disadvantage is that the material, language, is so common that the interest due to novelty is almost entirely lacking. The regular use of the vernacular by those authors who are considered standards of excellence must be the basis of all work in grammar. The application of the second scientific principle determines the general classification of language into the kinds of sentences and the parts of speech. This work is necessarily the first step in the study and should be taken up inductively. The third principle determines the divisions within each of the larger groups, the kinds of nouns, pronouns, adverbs, etc., both as to use and form. The teaching work at this stage of progress should be largely inductive, the teacher depending on

the text-book only for such facts as pupils would not ordinarily know; as, for example, special plurals of nouns. The fourth principle is the basis of all work in parsing, and of the technical part of analysis of sentences, and is of great value in drills and reviews. The fifth principle is not used often in a science so firmly established as that of grammar. The struggle for the adoption of the Potential Mode is an example in point.

Since induction is the method of scientific study now accepted as the only true pedagogic method for all sciences, excepting those within or bordering upon, pure reason, grammar should be taught inductively so far as the material available will permit. Text-books are valuable (1) in setting forth the thoughts of those authors who have given the subject much study; (2) in furnishing facts regarding the language, not known by the average reader; (3) as a sort of standard of comparison for pupils after they have attempted to formulate their own definitions and rules; (4) as a ready reference for review work; (5) and in providing exercises for drill in parsing and analysis.

In this part of the work students are required to state in detail how they would present new phases of the subject to classes; that is, what would be their aim, what previous knowledge (apperceptive mass) must the pupils have before the new fact can be attempted, how the teacher may apply scientific principles without requiring pupils to learn these principles. A thorough-going review of the subject matter is thus attained, with the advantage of clear-cut conceptions of what must be done in the actual work of teaching.

II. Logical Phase.

Since English is an almost purely analytic language, parts of speech and the relations of words are not determined by forms, but by the uses and functions of words in sentences; and, consequently, logical reasoning is a fundamental factor in the study of English Grammar. In syntax and analysis of sentences the inherent, logical processes of thought are antecedent to the arbitrary and conventional classifications of the science of grammar, which now become auxiliary instead of primary. In studying the parts of speech the question is, "To what class of words does this particular word belong?" while in syntax the problem is a broader one, "What is the relation of this word to some other word or words in the sentence?" The work of syntax is to discover the functions of words and their logical connection; also, in a few cases, the correct forms that correspond to certain functions.

The task of determining which forms and word-orders are standard, involves an extensive study of our language and literature, such as cannot possibly be conducted in school. For facts of usage, students must depend upon the investigation of others as recorded in text-books. They should, however, compare the information given in books with what they know of the language, and test the conclusions of the texts by logical reasoning. Syllogistic reasoning is implied in all definitions (cf. Dr. Harris' Psychologic Foundations of Education, pp. 65-88), in all classification, and in every determination of the correct forms to be used. But in grammar the conclusions are not so infallible as in mathematics, because language deals with qualities, not quantities, with ideas, not facts, and the premises may sometimes be variously interpreted. Since reasoning is imperative in all phases of grammar, syntax is in-

timately associated with both etymology and analysis; the study of Case, for example, and of such sub-classifications as Relative Pronouns and Participles, depends upon a knowledge of the functions of words in the sentence, while a correct conception of the thought in a sentence, as expressed by the given word-arrangement, is requisite for analysis. After the development of each fact of syntax, definition of the corresponding technical term should follow, and the intelligent use of such terms, as devices for saving time and energy, should be required.

In class review of the subject matter, students are required to state how they would illustrate and develop certain facts of syntax; for example, the difference between complement (attributive complement) and supplement (factitive complement), the difference between direct and indirect object, the correct forms of pronouns to be used after incomplete intransitives, the agreement of the predicate of a relative pronoun, the correct positions of adjectives and adverbs, etc. In this way the familiarity of students with the subject-matter is thoroughly tested, without the *ennui* of "threshing old straw"

III. Psychological Phase.

The review of analysis of sentences commands the use of all that students have previously learned. And in addition the psychological phases of the study are considered. The purpose is to develop in the minds of pupils a consciousness of thought processes, and to train in the ready and correct use of technical terms in explaining the ways of expressing thought. The progress is from experience (knowing the meaning of words), through reasoning out the problems presented, to insight into the meaning of the sentence. The important fact that words are symbols of our ideas of things as well as names of actual things, is emphasized, and methods of impressing this truth upon the minds of tolerably mature children are given. The general classes of ideas determine the parts of speech, and these fall into two groups—notional and relational. Under the former we arrange (1) ideas of things (sense-objects and thought-objects)—nouns; (2) ideas of assertions of action, state or being, etc.—verbs; (3) ideas of attributes of (1)—adjectives; (4) ideas of attributes of assertions and of attributes—adverbs; complex idea of (1) and (2) determine gerunds; of (3) and (2), participles. Under the latter we have, (1) ideas of relations between ideas represented by single words, prepositions; (2) ideas of relations between thoughts, conjunctions. Interjections represent emotions rather than ideas, although simple or complex ideas are associated with the emotions: (1) when the interjection is another part of speech, as "Look!"; (2) when the interjection expresses the emotional result of a train of thought, as "Pshaw!"

Similar psychological facts determine the classification of sentences and the use of equivalents of nouns, etc. in sentences. The classification of sentences depends upon the kind of thoughts, statements, questions, commands (unemotional or emotional) which may be single (simple sentence) or may contain other thoughts which are dependent (complex sentences), or independent (compound sentence). When clauses are used as equivalents of nouns they are regarded as single ideas. This fact is betrayed in the language by the use of the anticipatory subject "it" and the substantive conjunction "that." The same psychological truth in regard to the functions of phrases and of ad-

jective and adverb clauses is readily shown. Students are required to do so. An exhaustive discussion of the possible uses of the co-ordinate conjunction "and," with a written outline after the discussion, affords an excellent summary of the review of subject-matter from the three points of view, scientific, logical, psychological.

IV. Pedagogical Principles to be Applied.

In applying pedagogy students are required to show how and to what extent the following principles can be used in teaching grammar:

1. The healthy child finds pleasure in activity of body and mind.
2. The processes of teaching are determined by the order and laws of mental growth.
3. The first presentation of subject matter should be made with objects or actions (wherever possible).
4. Teaching should proceed first inductively, then deductively, fact, definition, exercises to show the application of the definition.
5. The work and content of the learner's mind must be brought to adequate expression.
6. All modes of formal education should present to the learner only the best models.
7. Frequent repitition and review of principles, processes, and forms of expression.

V. Professional View of the Value of Grammar.

The value of grammar is discussed in order to determine reasons for its place in the course of study. Practically, its value is very slight, for it necessarily follows the learning to use the language in both speech and writing. There is considerable satisfaction, however, in knowing that one uses the language correctly. A knowledge of English grammar is a requisite for scholarship in any other language. In the study of English literature grammar is valuable in arriving at a thorough understanding of difficult passages. But the chief worth of grammar is the fact that it furnishes almost the only opportunity for the exercise of pure reason in the grade schools. The Report of the Committtee of Fifteen emphasizes this fact (pp. 48-9): "Grammar is the science of language, and as the first of the seven liberal arts it has long held sway in school as the disciplinary study *par excellence*. A survey of its educational value, subjective and objective, usually produces the conviction that it is to retain the first place in the future. Its chief objective advantage is that it shows the structure of language, and the logical forms of subject, predicate, and modifier, thus revealing the essential nature of thought itself, the most important of all objects, because it is self-object. On the subjective or psychological side, grammar demonstrates its title to the first place by its use as a discipline in subtle analysis, in logical division and classification, in the art of questioning, and in the mental accomplishment of making exact definitions. Nor is this an empty, formal discipline, for its subject-matter, language, is the product of the reason of people, not as individuals, but as a whole, and the vocabulary holds in its store of words the generalized experience of that people, including sensuous observation and reflection, feeling and emotion, instinct and volition."

II.

Language in the Grades.

About three weeks' time is devoted to a consideration of the language work in the first six grades, with the following—

General Purpose: To study and discuss the psychological and practical phases of language work in the grades.

1. In regard to learning the words and word-order for the expression of thought;

2. In regard to planning the work so as to prepare pupils for the study of technical grammar;

3. In regard to the kind and amount of composition work to be done.

The Scope of the work should be as follows:

1. Special exercises for instruction and drill in oral and written expression of thought.

2. Practical correlation of language lessons with all other oral and written work of pupils.

In class the Plan of discussion is in the following order:

A. Theoretical:—

1. How words are learned by children before they enter school,—the psychologic basis of language;

2. The extent and character of the child's vocabulary when he enters school;

3. The child's knowledge of word-order at six years of age;

4. How the school offers facilities for learning to comprehend, speak and write the vernacular readily and correctly;

5. The kinds of composition work to be done—narration, description, dialogue, letter-writing.

B. Practical:—

1. The work in the lower grades should first be oral, and skillfully adapted to the pupils' age, interest, and command of language.

2. Impression (thought and feeling) must precede expression. The stimulation may come from conversations, stories told by the teacher or printed in the text, pictures with questions, events in school, incidents in the life of the pupils, etc.

3. Pupils must master the elementary technique of composition, such as the common uses of capitals, punctuation, abbreviations, contractions, letter-forms, and how the composition is to be written on paper. Pupils must be required to practice all of these conventions in all written work.

4. In each grade there should be frequent review of what has been learned in lower grades.

5. Important principles to be observed:

(a) Each thought should be clearly and completely in mind before attempting either oral or written expression.

(b) A definite sequence must be observed in the telling of stories, and in all exercises that prepare for grammar.

(c) In dictation exercises no hint as to how the work is to be written should be given by the teacher's manner of dictating. Pupils should be trained to receive and hold in mind two or more complete thoughts, and to write them correctly without aid from the teacher.

(d) There should be the minimum of rules and definitions; maximum of practice.

(e) Spontaneity and individuality of expression should be encouraged without sacrificing clearness and correctness.

(f) Criticism of the work should be sympathetic, with consistent requirement of definiteness, neatness, and effort. The teacher's attitude toward the work should be characterized by suavity and firmness.

Throughout this part of the work students are required to give illustrations of the practical application of the principles discussed.

SCOPE, PURPOSE, AND PLAN OF PROFESSIONAL REVIEW IN GRAMMAR.

CARRIE J. SMITH, River Falls.

An Outline.

I. Composition of Classes:—
- a. Students taking the full four years' course, thus having studied Grammar in the Normal school.
- b. Students (not High school graduates) who enter with various credits. They have probably studied Grammar in the Common schools, but more probably have been for the most part their own instructors.
- c. High school graduates.

II. Common Characteristics of above:—
- a. The subject-matter of Grammar has become more or less obscure with all.
- b. The word rather than the sentence is the unit of grammatical thought, hence
- c. The facts of Grammar are in a confused and unrelated state, hence
- d. There is little or no interest in the subject-matter, hence
- e. There is a common distaste for it.
- f. There is little conscious application of the principles of the correct use of the English language to their own speech.

III. Purpose of Work:—
- a. Academic,—
  To make better the undesirable conditions enumerated in II—to relate the isolated facts of the subject-matter, to breathe "the breath of life" into the sentence, to make the student conscious of his own speech, and to create self-activity in the correction of errors.
- b. Professional,—
  To train the student in careful analysis of his subject-matter, and in the presentation of the same,—i. e., the Method of the What and the Method of the How.

IV. Scope of Work:—
The work must be both academic and professional,—the academic to be of sufficient scope to enlarge and extend views of subject-matter, correct false ideas, strengthen weak points, and, in general, give a solid basis for the professional work which accompanies it.

V. Plan of Work:—

Academic and professional work synchronous, i. e., the study of any particular topic academically to be followed by lesson-plans on some feature of that topic, these plans to be subject to class discussion and criticism and occasionally one presented to a class from the grades in the presence of the Review class, this presentation being followed by discussion and criticism.

APPLICATION OF THE "FOUR FUNDAMENTAL PROPOSITIONS" IN THE TEACHING OF GRAMMAR.

GRACE DARLING MADDEN, Milwaukee.

Introduction.

The following units were selected to be reviewed by classes in the Professional Review class in Grammar in the Milwaukee Normal school. These units were developed one at a time and were organized in lesson or class-plans based upon the four fundamental propositions. The teacher at times formulated a class-plan corresponding to a whole unit. Again the teacher organized individual daily class-plans corresponding to each new step in advance in the teaching of a whole or large unit. The students in turn each organized lesson-plans corresponding to each succeeding step in the teaching of and developing of a large or unit-whole. The pupils observed the teacher's class-plans closely—discussed the class-plans under following heads:

1. Preparation for the next day's work.
   a. Of subject matter to be taught.
   b. Of the pupil's mind in order that he may do assigned work effectively and rapidly.
2. Presentation of the day's lesson in the class-room.
3. Review and application of the data learned, or generalizations arrived at, to new particulars.

The students in the review class finally formulated what seemed to them to be the results of the application of the four fundamental propositions to the teaching of Grammar.

UNIT I.

Aims—

a. To have pupils recognize and define a sentence and its parts.

b. To have pupils recognize and define nouns, pronouns and verbs.

UNIT II.

Aims—

a. To have pupils learn that the meaning of a noun may be modified by an adjective.

b. To have pupils learn that adjectives may be simple or many-worded.

UNIT III.

Aims—

a. To have pupils learn to recognize and define adverbs.

b. To have pupils learn that adverbs may be simple or many-worded.

UNIT IV.

Aim—

To have pupils learn to recognize and define transitive, intransitive and copulative verbs.

UNIT V.

Aim—

To have pupils learn to recognize and define prepositions.

UNIT VI.

Aims—

a. To have pupils learn to recognize and define conjunctions.

b. To have pupils learn to classify sentences according to form.

c. To have pupils learn to distinguish between clauses with respect to their office.

d. To have pupils learn to distinguish between clauses and phrases.

UNIT VII.

Aim—

To have pupils learn that nouns, pronouns and verbs change their form to express a difference in number.

UNIT VIII.

Aim—

To have pupils learn that pronouns and nouns change in form to show their relation to other words.

UNIT IX.

Aims—

a. To have pupils learn that pronouns and verbs are inflected to express difference in person.

b. To have pupils learn the declension of the personal pronoun.

UNIT X.

Aims—

a. To have pupils learn that verbs are inflected to show difference in time.

b. To have pupils learn the meaning and formation of tenses of the indicative mode.

c. To have pupils discuss the meaning of other verb-phrases of different modes and tenses.

UNIT XI.

Aims—

a. To have pupils learn that verbs are inflected to express a difference in the manner in which the action may be regarded.

b. To have pupils learn that the form of a verb may show whether the subject performs the action or whether the subject receives the action which the predicate expresses.

UNIT XII.

Aim—

To have pupils learn that adjectives and a few adverbs are inflected to show a difference in degree.

UNIT XIII.

Aim—

To have pupils summarize what they have learned in regard to the inflection of nouns, pronouns, verbs, adjectives and adverbs.

UNIT XIV.

Aim—

To have pupils recognize and define interrogative pronouns and interrogative adjectives.

UNIT XV.

Aim—

To have pupils learn to recognize and define demonstrative pronouns and demonstrative adjectives.

UNIT XVI.

Aim—

To have pupils learn to recognize and define indefinite pronouns and indefinite adjectives.

UNIT XVII.

Aim—

To have pupils learn to recognize and define relative pronouns and relative adjectives.

UNIT XVIII.

Aim—

To have pupils learn some of the essential qualities of participles.

UNIT XIX.

Aims—

a. To have pupils learn some of the qualities of infinitives.

b. To have pupils learn to distinguish clearly between infinitives and participles.

UNIT XX.

Aims—

a. To have pupils name the parts of speech that may be used as connectives.

b. To have pupils classify clauses and phrases.

c. To have pupils name the different kinds of modifiers of the subject.

d. To have pupils name the different modifiers of the predicate.

e. To have pupils name the different kinds of complements of the predicate.

UNIT XXI.

Aim—

To have pupils summarize what they have learned about nouns.

UNIT XXII.

Aim—

To have pupils summarize what they have learned about pronouns.

UNIT XXIII.

Aim—

To have pupils summarize what they have learned about adjectives.

UNIT XXIV.

Aim—

To have pupils summarize what they have learned about adverbs.

UNIT XXV.

Aim—

To have pupils summarize what they have learned about prepositions.

UNIT XXVI.

Aim—

To have pupils summarize what they have learned about conjunctions.

UNIT XXVII.

Aim—

To have pupils summarize what they have learned about verbs.

UNIT XXVIII.

Aim—

To have pupils classify and define sentences.

UNIT XXIX.

Aim—

To have pupils learn to summarize and apply the laws of correct syntax relative to comparison of adjectives and adverbs.

UNIT XXX.

Aim—

To have pupils learn to summarize and apply the laws of correct syntax relative to case forms of nouns and pronouns.

UNIT XXXI.

Aim—

To have pupils learn to summarize and apply the laws of correct syntax relative to tense forms of verbs.

UNIT XXXII.

Aim—

To have pupils learn to summarize and apply the laws of correct syntax relative to comparison of adjectives and adverbs.

UNIT XXXIII.

Aim—

To have pupils learn to summarize and apply laws of correct snytax syntax relative to comparison of adjectives and adverbs.

II. The application of the "four fundamental propositions" in preparation of class work from day to day, necessitates the organization of lesson-class-plans, the parts of which are arranged under the four headings, viz.:

1—Aim or aims.

2.—What must be known or done by the student to realize these aims.

3.—Of proposition 2 what does the student already know, or what can he do?

4.—What under proposition (2) the pupil still has to learn or do.

The lesson plans necessitate the selection and organization of the subject matter of grammar. The selection and organization of the subject matter of grammar (for purposes of teaching the same) depend upon three other things—(1) the content of grammar; (2) the purposes or values of the study; (3) similarities or differences between data.

The selection and organization of similar data involves often a unit or topic-whole. This whole may be so large that it is not adapted to individual or daily work, i. e., it is necessary then that the teacher should organize the large unit or topic-whole into smaller units, and again organize these smaller units into class-plans each corresponding in turn to one or more days' work, according as each class-plan developed will need one or more days to realize number 1 of the four fundamental propositions.

II. The following is an outline of a unit-whole based upon the four fundamental propositions:

1.—Aim—To lead the pupil to recognize and define copulative, transitive and intransitive verbs.

2.—What must be known or done to realize above aim.

(a) The pupil must observe in a series of sentences supplied by the teacher that some verbs require other words to complete the assertion about the subject.

(b) He must be told that such verbs are called incomplete verbs.

(c) He must select incomplete verbs in this series of sentences.

(d) He must observe again in this series of sentences that some verbs do not require other words to complete the assertion about the subject.

(e) He must be told that such verbs are called complete verbs.

(f) He must select complete verbs in this series of sentences.

(g) He must be led to observe that some incomplete verbs are completed by words which seem to qualify the subject, as, e. g., "She seems indifferent."

(h) He must be told that such verbs are called copulative verbs.

(i) He must select copulative verbs in this series of sentences, which verbs are completed by words qualifying the subject.

(j) He must be led to observe that some verbs are completed by words which seem to name as well as qualify the subject.

(k) He must be told that such verbs are also called copulative verbs. He must select such copulative verbs as are completed by words naming the subject.

(l) He must be led to observe again that some verbs are completed by words which seem to stand for the name of the subject, as "It is I," *I* standing, for instance, for the name-word Mary or Grace.

(m) He must be told that such verbs are also called copulative verbs.

(n) He must select copulative verbs which are completed by words which stand for the name of the subject.

(o) He must be led to define "copulative verb."

(p) He must recall that a word which qualifies the subject is called an adjective. He must then be told that a word qualifying the subject and completing the verb is called a predicate adjective.

(q) He must select predicate adjectives of copulative verbs in this series of sentences.

(r) He must recall that a name word is a noun. He must be told that words completing verbs which seem to name the subject as well as qualify the subject are called predicate nouns.

(s) He must select predicate nouns in this series of sentences.

(t) He must recall that a word standing for a noun is a pronoun. He must be told that such words completing verbs which stand for name-words are called predicate pronouns.

(u) He must be led to select predicate pronouns in this series of sentences.

(v) He must be led to define a predicate adjective, predicate noun, predicate pronoun.

(w) He must turn to his grammar to fix and perfect the definition of a copulative verb, predicate noun, predicate pronoun, predicate adjective.

(x) He must analyze a series of sentences taken from the grammar in which he selects copulative verbs with their completing words.

(y) He must be led to observe that some verbs are completed by words which do not qualify, name, or stand for the name of the subject.

(z) He must observe that the completing word of such verbs receive the act asserted by the verb.

(a') He must be told that such verbs are transitive verbs.

(b') He must select transitive verbs and their completing words in a series of sentences.

(c') He must be told that the completing word of a transitive verb is called the object of the verb.

(e') He must be led to define transitive verb and direct object of transitive verb.

(f') He must turn to his grammar to fix and perfect the definition of transitive verb and direct object of a transitive verb.

(g') He must be told that another name for a complete verb is an intransitive verb.

(h') He must be led to select intransitive verbs in a series of sentences presented by the teacher.

(d') He must formulate a definition for an intransitive verb.

(j') He must turn to his grammar to fix and perfect this definition.

(k') He must be led to analyze a series of sentences, discriminating between transitive and intransitive and copulative verbs, and their completing words, if they have such words.

(l') He must be led to make a summary of verbs with reference to whether they are complete or incomplete and with reference to their completing words.

What facts of grammar must have been taught the pupil before he is taught to recognize and define copulative, transitive, and intransitive verbs.

He must know the following:

1.—That a sentence is an expression of thought in words.

2.—That every sentence has two parts, a subject and a predicate.

3.—The definition of the subject of a sentence—simple, and many-worded.

4.—The definition of the predicate of a sentence—simple, and many-worded.

5.—The definition of a noun.
6.—The definition of a pronoun.
7.—The definition of an adjective.
8.—The definition of a verb.
9.—The pupil must be able to distinguish between an adjective and an adverb.

III. The lesson plan developing this unit-whole involves so much that is new to the student that it necessitates the organization by the teacher of lesson plans corresponding to only one of two advanced steps of the whole unit. With this in view the following aims or series of aims are given for the development of this large unit-whole for the organization of smaller units corresponding to daily lesson class-plans.

Aims—1. To teach the pupil to recognize a complete and incomplete verb.

2nd Set of Aims.—(a) To review with the pupil the work of the preceding day with reference to complete and incomplete verbs. (b) To teach the pupil to recognize and define one division of the incomplete verb, the copulative verb. (c) To prepare the pupil for the next day's lesson.

3rd Set of Aims.—(a) Review of the preceding day's lesson with reference to copulative verbs. (b) To teach the pupil to recognize and define a transitive verb. (c) To prepare the pupil for the next day's lesson.

4th Set of Aims.—(a) To test or review the preceding day's work with reference to transitive verbs. (b) To teach the pupil to recognize and define the intransitive verb. (c) To prepare the pupil for the next day's lesson.

5th Set of Aims.—(a) To lead the pupil to fix and formulate the definitions of the following: copulative verb, transitive verb, intransitive verb, predicate noun, predicate pronoun, predicate adjective, direct object of a transitive verb. (b) To prepare the pupil for the next day's lesson.

6th Set of Aims.—To review the preceding day's work. (b) To lead the pupil to apply his knowledge of copulative and transitive verbs by leading him to discriminate between the copulative and intransitive verb in a series of sentences selected from the text-book. (c) To preprepare the pupil for the next day's lesson.

7th Set of Aims.—(a) To review the preceding day's work. (b) To lead the pupil to apply his knowledge of transitive and intransitive verbs by leading him to discriminate between transitive and intransitive verbs in a series of sentences selected from the text-book. (c) To prepare the pupil for the next day's recitation.

8th Set of Aims.—(a) To review the preceding day's work. (b) To lead the pupil to discriminate between copulative, transitive, and intransitive verbs in a series of sentences selected from the text. (c) To prepare the pupil for the next day's lesson.

NOTE.—Some teachers would here teach the laws relative to the case forms of pronouns used as completing predicates and of pronouns used as direct objects of transtive verbs. If so, the following series of aims develop.

9th Set of Aims.—To lead the pupil to observe and formulate the following laws: (a) That a direct object of a transitive verb is in the

objective case. (b) That a pronoun used as a completing word of a copulative verb is in the same case as the subject of that verb. (c) To prepare the pupil for the next day's lesson.

10th Set of Aims.—(a) To review the preceding day's work; that is, to lead the pupil to apply the preceding laws in a series of sentences prepared by the teacher. (b) To prepare the pupil for the next day's lesson.

11th Set of Aims.—(a) To review the preceding day's work; that is, to lead the pupil to discover that these two laws are obeyed in thought, —embodied in literary form. (b) To prepare the pupil for the next day's lesson.

12th Set of Aims.—(a) To lead the pupil to detect and hence to avoid errors with reference to case forms of completing words used with copulative and transitive verbs. (b) To prepare the pupil for the next day's lesson.

13th Set of Aims.—To lead the pupil to apply above laws to his own oral and written work.

If the preceding aims are developed with reference to case forms of completing words, other data must be known by the pupil before attempting to teach him laws governing case forms of completing words, namely, the following: (1) The pupil must know the definition of the term *case*. He must know what is meant by the terms *nominative* and *objective case*. He must be able to inflect the following personal pronouns in the singular and plural, *I, he, she*, the relative pronoun *who* and its compound forms, like *whosoever*.

IV. Illustrations of class or lesson-plans based upon the four fundamental propositions, which lesson-plans are for the purpose of realizing the first three sets of aims outlined above when teaching the unit or topic whole; compulative, transitive and intransitive verbs.

Class-Plan 1.

Aim 1.—To teach the pupil to recognize and define complete and incomplete verbs.

2. What must be known or done by the pupil to realize these aims.

(a) That a sentence is an expression of thought in words.

(b) That every sentence has at least two parts, subject and predicate.

(c) That the subject is that about which something is asserted.

(d) That the predicate is that which asserts something about the subject.

(e) That the subject may be many-worded.

(f) That the predicate may be many-worded.

(g) That a verb is usually the predicate, or is that which asserts something about the subject.

(h) The pupil must be able to analyze a series of sentences presented by the teacher and observe that some verbs do not need a word to complete the assertion about the subject.

(i) He must observe this again and again.

(j) He must be told that such verbs are called complete verbs.

(k) He must select the complete verbs in this series of sentences.

(l) He must be led to define a complete verb.

(m) He must observe in this series of sentences that some verbs do require other words to complete the assertion about the subject.

(n) He must observe this again and again.

(o) He must be told that such verbs are called incomplete verbs.

(p) He must select incomplete verbs in this series of sentences.

(q) He must be led to define an incomplete verb.

(r) He must be led to discriminate between all the complete and incomplete verbs in this series of sentences, by the teacher.

(s) He must turn to his grammar to fix and perfect the definitions of a complete and an incomplete verb.

(t) He must be told to analyze a series of sentences selected by the teacher taken from the grammar, to select and name the complete and incomplete verbs. This last is in preparation for the next day's lesson.

(3) Of all under proposition (2) what does the pupil already know or what can he do?

He knows all of a, b, c, d, e, f, g.

(4) What remains to be known or done?

All under proposition (2) not found under proposition (3), namely, from h to s.

Class-Plans 2.

Aim.—(a) To review the preceding day's lesson, to test the student's preparation of a part oi the advance lesson.

(b) To teach the pupil to recognize and define copulative verbs and their completing words.

(c) To prepare the pupil for the next day's lesson.

2.—What must be known or done to realize these aims?

(a). He must define again a complete and incomplete verb.

(b) He must analyze rapidly the series of sentences indicated the day before by the teacher, selecting the complete and incomplete verbs, that is, noting the subject and predicate, and stating whether the verb is the complete predicate or whether the verb requires another word or words to complete the assertion about the subject.

(c) He must observe in a given series of sentences that incomplete verbs are completed by words which seem to qualify the subject, as in the sentence: "Sne looks *pale*."

(d) He must observe this again and again.

(e) He must be told that such verbs so completed are called copulative verbs.

(f) He must be led to select copulative verbs so completed in a series of sentences.

(g) He must be led to observe that some verbs are completed by words which seem to name as well as qualify the subject as, "He is a *king*."

(h) He must be led to observe this again and again.

(i) He must be told that such verbs so completed are also called copulative verbs.

(j) He must be led to select copulative verbs so completed in this series of sentences.

(k) He must be led to observe that some verbs are completed by words which seem to stand for the name of the subject as, "I am she."

(l) He must be led to observe this again and again.

(m) He must be told that such verbs so completed are also called copulative verbs.

(n) He must be led to select copulative verbs so completed in this series of sentences.

(o) He must be led to define a copulative verb.

(p) He must turn to his grammar to fix and perfect his definition of a copulative verb.

(q) He must recall that a word completing a copulative verb which seems to qualify the subject is an adjective. He must be told to call such completing words of a copulative verb predicate adjectives.

(r) He must select predicate adjectives in this series of sentences.

(s) He must be led to define a predicate adjective.

(t) He must recall that words which complete the verb, which name the subject as well as qualify it are nouns, and he must be told that such completing words of copulative verbs are called predicate nouns.

(u) He must be led to select predicate nouns in a series of sentences.

(v) He must be led to define the predicate noun.

(w) He must recall that words used in place of nouns are pronouns, and must be told that pronouns needed to complete copulative verbs are called predicate pronouns.

(x) He must select predicate pronouns in this series of sentences.

(y) He must be led to define a predicate pronoun.

(z) He must turn to his grammar to fix and perfect his definitions of a predicate noun, predicate pronoun, predicate adjective.

(a') In preparation of the next day's work he must be given a series of sentences in which he is to select the complete and incomplete verbs, the incomplete verbs which are copulative, their completing words.

3.—Of all the points under proposition 2 what does the pupil now know or what can he do? a, b, perhaps s, g, k, q, t, w.

4.—What remains to be known or done?

All under proposition 2 not indicated under proposition 3.

Class-Plan 3.

Aim.—(a) To review and test the pupil's knowledge of a copulative verb and its completing words.

(b) To teach the pupil to recognize and define a transitive verb.

(c) To prepare the pupil for the next day's recitation.

2.—What must be known or done by the pupil to realize these aims.

(a) The pupil must define again a copulative verb, a predicate adjective, a predicate noun and a predicate pronoun.

(b) The pupil must analyze rapidly the sense of sentences assigned the day before, select the complete and incomplete verbs, select the copulative verbs and name their completing words.

(c) The pupil must select the incomplete verb in a series of sentences supplied by the teacher and observe that some verbs are not completed by words which name, qualify or stand for the name of the subject.

(d) He must observe that they are completed by words standing for objects which receive the act asserted by the verb.

(e) He must observe this again and again.

(f) He must be told that such verbs are called transitive verbs.

(g) He must select all the transitive verbs in this series of sentences.

(h) He must be led to define a transitive verb.

(i) He must be told that the completing word of a transitive verb is called the direct object of a transitive verb.

(j) He must select all of the objects of the transitive verbs in this series of sentences.

(k) He must be led to define the direct object of a transitive verb.

(l) He must turn to his grammar to fix and perfect his classification of a transitive verb, of a direct object of a transitive verb.

(n) In preparation for the next day's work he must be told to analyze a series of sentences given in the grammar and to select the transitive incomplete verbs and their completing words in this series of sentences.

3.—Of all included under proposition 2 what does the pupil now know or what can he do? a, b, perhaps c, d.

4.—What remains to be known or done?

All not included under proposition 3.

NOTE.—If a lesson or class-plan is not completed in one day, the same lesson is continued until finished before the teacher attempts to realize a new series or set of aims in the development of this large unit-whole—"Copulative, Transitive and Intransitive verbs."

a. Further lesson plans should be made by the teacher until all of the aims noted under III. are realized—these aims were formulated for the purpose of teaching new data, testing students' preparation of assigned work, drilling upon data taught, application of data learned, or the application of generalization arrived at to new particulars.

V. Above selections and grouping of material and organization of the same in lesson plans involves what plans or lines of work on the part of the teacher?

1.—The teacher must know the subject of grammar as a whole and see its natural and logical division into units. See units I to XXXIX given in introduction.

2.—The teacher must see the relation between these units if any exists.

3.—The teacher must determine the naming of the "unit-heads."

4.—The teacher must determine their relative importance.

5.—The teacher must determine their order.

6.—The teacher must organize lesson-plans corresponding to a unit or a division of a unit, if the unit is so large as to require a series of lesson plans.

7.—The teacher must determine what topics a, b, c, etc., under proposition "2" of the lesson-plan the pupil now knows or can do.

8.—The teacher must determine how he may rapidly and effectively bring to the consciousness of the pupils the data already known, which may be brought into such living and vital relation with the new as to aid the class to comprehend the new or unknown.

9.—The teacher must determine his mode of precedure before he attempts to teach the class the topics under proposition "4" of the lesson plan.

10.—The teacher must prepare a series of sentences, which sentences are so selected and grouped that the pupil may observe again and again some grammatical fact; for example, that some verbs require other words to complete the assertion about the subject and may finally arrive at generalizations; for example, verbs which require other words to complete the assertion about the subject are called incomplete verbs.

11.—The teacher must be ready to refer the pupil to certain pages of the text-book for reference and study. The pupil will need to compare the definitions and rules which he has formulated with like generalizations in the text-book, will need to study series of sentences presented in

the text for the purpose of applying the generalizations arrived at to new particulars, will need the guidance of the text-book in the formation of summaries of units; such as all the offices of nouns in sentences, classes of pronouns, etc.

12.—The teacher must think out logical summaries of units in order that he may teach his class to form similar summaries.

VI. The handling of the class-plan based upon the four fundamental propositions in the classroom, or with the class.

This will be considered under three heads:

1. Preparation.
2. Presentation.
3. Application and drill.

1. *Preparation.*

(a) The teacher organizes the subject-matter to be taught, and the order in which it is to be taught.

(b) The teacher announces the aim or purpose of the lesson.

(c) The teacher determines the questions which are to reach back and gathered up data presented in former lessons which will serve as a transition for the new lesson.

(d) The teacher announces the matter of the new lesson to the class.

(e) If the child is to study the next day's lesson, which study is to precede actual recitation in the classroom the teacher makes such remarks explanatory of the topics under "proposition 4," if such need explanation, and gives such definite directions as are necessary for the child's accurate understanding of his mode of procedure in preparing the next day's lesson.

2. *Presentation.*

The recitation is conducted for the purpose of the pupil's gaining a truer view and a deeper insight of the subject matter which he has studied, or with the purpose of presenting the new inductively, in which case the subject matter has not been previously assigned to the pupil for study.

(a) In this latter case, presentation to the class of a series of sentences to be used in teaching the new.

(b) Presentation or teaching of the new:

The teacher by means of a series of questions and directions leads the class to observe again and again concrete illustrations of some grammatical fact or phenomenon. The pupil compares these illustrations or concrete examples of the same phenomenon, states the similarity existing between these individual illustrations or concrete examples and arrive at a definite conclusion or generalization, which generalization may be a definition, or a rule of correct syntax. For example: He observes that some verbs are followed by words which complete the assertion made about the subject; he observes this again and again in a like series of sentences; he states in his own words this observation which he has repeatedly made; he is told to call such a completing word a completing predicate and is then led to define the term "completing predicate."

3. *Practice, Drill, Application.*

Comparing pupil's generalization with text-book generalization, further application of generalization to many new particulars—repetition of the generalization,-that is the definition or rule; when a whole "unit" has been taught, the making of a summary of the whole; repetition of the facts of this summary in an orderly series; original illustrations by the class of the different data of the summary; application of rules learned to pupils' oral and written work; constant search in literature for further illustrations.

VII. Class work based upon the four fundamental propositions is truly pedagogical.

1. The first important function and duty of the teacher is to prepare the students' mind for the assimilation of new knowledge, and to present the subject matter of instruction in the order and manner which best conduces to this assimilation. The class-plan based upon the four fundamental propositions does this. Why?

(a) It presents the subject matter in logical order.

(b) Points out definitely what is to be done.

(c) Indicates the order in which this is to be done.

(d) Brings to the consciousness of the pupil preceding known data and experiences similar to or relating to today's subject-matter of instruction.

(e) These known data reach out and bring into vital relation with themselves the new elements of knowledge to be learned.

(f) The statement of the aim puts the pupil into the proper frame of mind for work in so far as it may excite expectation, arouse the pupil's activity in working at a task.

2. The class-plan based upon the four fundamental propositions makes the subject matter of instruction clear.

(a) It presents matter not in the mass, but in small logically connected sections to each of which in succession the pupil gives his individual attention, thus ensuring clearness of each step.

(b) After attention has been given to each successive step of the lesson-whole, these steps are brought into a close relation with each other;—the pupil thus gains clear individual notions and avoids the apprehension of a confused mass of disconnected details. This close connection of the individual steps of the lesson-plan is brought about by means of requiring the pupil to make a clean well-cut summary of the whole lesson.

3. The class-plan based upon the four fundamental propositions is capable of presenting the subject matter of instruction in a connected series.

(a) The class-plan rightly organized calls for summaries of unit-wholes as a final means of review. Each lesson-plan of a "unit" corresponds to one or more onward steps of a series of related steps.

A naturally related series helps form intimate and lasting associations.

(c) The class-plan does not preclude devices to fix the series in mind.

(d) The class-plan calls for persistent application of generalizations to new particulars. If knowledge is to have a rich content, the generalization must be again and again re-enforced by application to new particulars. This application of a generalization to a new particular coordinates, groups knowledge.

4. The lesson-plan based upon the four fundamental propositions requires the taking of thought about the best sub-division of the matter to be taught. The pupil in time sees the "unit-whole," an order in grouping.

5. The lesson-plan based upon the four fundamental propositions admits of the use of the monologue or dialogue in the class, of analysis or of synthesis with regard to the subject matter, of the method of induction and of deduction with regard to the learner.

6. The lesson-plan based upon the four fundamental propositions requires the teacher to see that what knowledge the pupil has on hand is put to use, in so far as the pupil is led to relate the known to the unknown and is constantly required to apply generalizations made (rules, definitions, classifications) to new particulars.

7. The lesson-plan based upon the four fundamental propositions calls for careful determination of each day's advance lesson and of careful preparation.

(a) The right order and manner of the subject matter to be taught.

(b) Of the student's mind for rapid and effective assimilation of new data.

8. The lesson-plan based upon the four fundamental propositions requires the teacher to think of the best means at hand to aid the pupil to assimilate new knowledge, since the teacher must constantly conceive of means to realize aim or "proposition 1."

The average Grammar usually introduces an individual generalization which is illustrated by a single sentence and then applied to a few disjointed and often meaningless sentences. The teacher's attempt to see how he may best realize the aim or aims set forth in "proposition 1" leads him to see that the pupil must arrive inductively at a generalization and apply this generalization again and again to new particulars.

VIII. The handling of a class-plan with a class who are composed of students *in the Professional* Review Class in Grammar.

1. The teacher presents a large unit, the outline of which is based upon the class-plan. The unit is large for two reasons: (a) The pupil has a breadth of knowledge concerning Grammar before entering the professional review class. (b) The large unit saves time in so far as topics are reviewed.

2. The teacher at least once during the half quarter takes a large unit which has been developed with the class, divides this unit into a series of logically related smaller units, organizes a series of class-plans corresponding to each of the smaller units. These individual class-plans, corresponding to the units of the large class-plan, make up an orderly series developing the whole unit. The class-plan embraces the four heads.

1. Aim or aims of the day's work.
2. What must be known or done to realize these aims.
3. What is already known or can be done by the pupil.
4. What remains to be done or known.

3. Each student in the professional class is expected to develop, as a piece of original and special work done by himself, a similar series of related class-plans which are parts of a series developing a large unit, or larger class-plan whole. He carefully prepares each of the units of the series in an orderly outline—this outline is based upon the four fundamental propositions noted above. This individual work of each

student is criticised by the teacher and compared with class-plan work presented to the class by the teacher. The student then reviews and corrects his work and puts it in the best shape possible. After some two or three weeks have been devoted to the consideration of class-plans outlined by the teacher, the class are expected to formulate the results of the teaching of grammar based upon the four fundamental propositions, which results they infer or derive from their own experience in the classroom. These results are read aloud in class by individual students, compared, and different students are required to state how each one of these results seems to him to have been accomplished. At times the teacher definitely discusses with the class the aims in view in the development of a class-plan, the order and arrangement of the subject matter of instruction, and the means used for drill and application.

The teacher reviews with the class the subject matter of grammar. This subject matter was organized and grouped by the teacher in some thirty units. As many of tnese units are reviewed with the class as time permits. These units represent large wholes which then need subdivision into smaller units, making up a related series of this larger whole. The teacher uses these lesson-plans for two reasons: (a) to review with the pupil the essentials of English Grammar; (b) to illustrate to the pupil the organization of the subject matter of Grammar based upon the four fundamental propositions. Thus the academic work and professional work are combined. There is a necessity for the combination of the academic work and professional for two reasons: (1) The average student in the professional class evinces a lack of understanding of Grammar. (2) It seems a foolish waste of time to first present the subject matter of instruction by one method to the class, and then later to organize this subject matter of instruction based upon the four fundamental propositions in a different manner and order than that originally presented by the teacher. The review or the academic work is presented to the class inductively, that is, the teacher prepares a series of sentences to be used in connection with each unit of instruction. The pupil observes the phenomena or facts through the medium of these correct illustrations; he observes like illustrations; he is led to consciously compare them and to determine their points of similarity. Through this observation, comparison and abstraction of a similarity, he arrives finally at a generalization. This generalization may be a definition, it may be a rule of syntax. This generalization made by the student is then compared with the text-book generalization, is fixed and formulated. The student then applies the generalization to many new concrete illustrations of the same phenomena. These concrete illustrations are taken from the text-book in Grammar. The student is expected to make a summary of each day's new lesson presented, and a final summary of the series of successive units which go to make up a larger unit or whole. The student is thus illustrating also the deductive method in the study of Grammar in so far as he is required to apply the generalization at which he has arrived to many a new particular.

The student is required in time to discuss with a teacher the class-plan based upon the four fundamental propositions under the following heads: 1—Preparation for class-work, (a) the preparation or organization of the subject matter of instruction; (b) the preparation of the child's mind for the rapid and effective assimilation of this new data. 2—The presentation of the same in the classroom, (a) the method of

presentation through induction; (b) the character, number and kind of the sentences or concrete illustrations to be prepared by the teacher; (c) the logical order of the presentation of the new. (3)—Drill and application. Necessity of drill to fulfill the aim as stated under the four fundamental propositions. Means to vary mode of drilling, such as the summary of each day's work, the summary of larger units, and application of the principle derived to new particulars.

VIII. The following results of the application of the four fundamental propositions to the teaching of grammar were formulated and stated by the students of a Professional Review Class in Grammar. The conclusions at which they arrived were not instigated by the teacher except in so far as she in her review work with her class presented to them the units of subject matter in Grammar organized in lesson-plan based upon these propositions.

Results formulated by the class.

1. The teacher is required to determine the aims in view in each succeeding lesson.
2. The "class-plan" determines the method of what?
3. The teacher is led to make a careful analysis of subject matter selected to be taught in order to determine whether the selection is adapted for the realization of the aims stated under "proposition 1."
4. The class-plan calls for a careful organization as well as selection of subject matter to be taught.
5. The matter of organizing the "what" aids the child's memory of data. Why?
   (a) Because one step is taught thoroughly at a time.
   (b) Because facts are taught in a related series.
   (c) Because of the careful presentation of the new in a logical order and manner.
6. The class-plan paves the way for the child's effective and rapid assimilation of new data. Why?
   (a) The new data are presented in an orderly and logical manner.
   (b) The child's mind is prepared for this effective and rapid assimilation of new data, since the teacher brings to the consciousness of the pupil the "known" which has a close and vital relation to the "unknown."
7. The class-plan causes a teacher to discover whether the child really has the necessary known data to properly understand the new or related unknown. The third fundamental proposition calls for the recognition of this by the teacher.
8. The class-plan necessitates the organization, that is, the selection and arrangement or classification of subject matter for teaching.
9. The class-plan prevents waste of time. How?
   (a) Teacher determines beforehand what the child is to do, the order in which this is to be done, and makes a definite and exact assignment of each day's succeeding work.
   (b) The statement of the aim will cause the child to work with the thought of finally arriving at the data necessary for the realization of this aim.
   (c) The class-plan necessitates the teacher's bringing to the consciousness of the child that apperceptive mass which has a vital and close relation to the new.

10. The class-plan requires so careful a preparation on the part of the teacher that it makes the teacher free; in other words the teacher is better prepared to meet the emergencies which may arise in the classroom.

11. The class-plan makes the teaching of Grammar practical, in so far as the child is to apply every generalization reached or arrived at to new and varying particulars.

12. The class-plan prevents the child's memorizing facts by page. How? Teacher does not assign the advance lesson by page, but by topic in a related series of steps developing this topic.

13. The summaries of unit-wholes made admit of excellent training in language power. How? (a) The child learns to separate essential data from non-essential. (b) The child is required to make a condensed oral summary of the whole. (c) The child is required to talk definitely to a point.

14. Through the medium of a class-plan the child learns the relation existing between the parts of the whole. Again the child learns the whole through a related series.

15. The class-plan forces the teacher to utilize the child's previous knowledge and experience, thus stimulating interest and attention.

16. The child's mind is aided in rapid and effective assimilation of new data: (a) because of the statement of the aim, (b) because of the orderly presentation of subject matter in a related series, (c) because the new or "unknown" is made clear through the medium of its close and vital relation to the "known."

17. The child has a well defined plan, a method of study, for each day's work, in other words he knows what to do, and the order in which to do it.

18. The class-plan has an ethical value for the child (a) in so far as he is aided and guided in the performance of a definite task for the fulfillment of a definite aim or purpose, (b) in so far as the child cannot plead that he did not understand the assigned lesson or duty.

19. The class-plan illustrates the inductive and deductive process of learning.

20. The teacher puts to use the capital the child has on hand.

21. The class-plan arouses the self-activity of the pupil. Why?

(a) Statement of aim may stimulate interest and attention.

(b) Statement of aim may indicate to some pupil the steps to be taken to arrive at this aim.

(c) The careful assignment of the next day's lesson invites activity of the pupil.

22. The class-plan may be a means of valuable mental discipline. Why?

(a) The "method of the what" often points out the "method of the how."

(b) The child is led to compare, observe, abstract and generalize.

23. The class-plan illustrates the proper use of the text-book in the following respects: (a) The child is to compare his definitions, rules, or generalizations arrived at with those given in the text-book; (b) the child is to acquire from the text-book new and further illustrative sentences, which sentences are to be used for the application of the child's generalizations to new particulars; (c) the average text-book of Grammar presents fine summaries of whole units. These units

may be used as a means of review; (d) the average text-book in Grammar presents the conclusions of trained thinkers, and is often a fine reference book concerning technical and disputed points.

24. The class-plan illustrates how the child each day may be led to accomplish something definite, a step in advance, and how at the end or close of the study of the unit, he is able to carry away essentials in definite and permanent form. Why? The child is required always to make a summary of each day's advance work, as well as a summary of the unit-whole.

25. The class-plan compels the child's close attention to the aim of each day's lesson, since the subject matter of instruction is based entirely upon the aim or aims to be accomplished.

26. Class-plan discloses possible shortcomings with respect to the subject matter as presented in the average text-book. How? The teacher in formulating what is to be known or done to realize aims or propositions must inevitably analyze the subject matter as presented in the average text, must criticise the presentation of the same, and must determine whether the subject needs further elucidation and illustration than that presented by the text. Again many a text-book calls for the rote-memorizing of underived generals and the application of imperfectly understood generals to new particulars.

27. The class-plan compels a teacher to recognize and use an important principle of teaching; namely, "proceeding from the known to the related unknown."

SOME IMPORTANT PEDAGOGICAL PRINCIPLES APPLICABLE IN TEACHING GRAMMAR, COMPOSITION AND RHETORIC.

ALBERT HARDY, Platteville.

GRAMMAR.

1. The nature of a study largely determines the aim in teaching that study.

2. Grammar is a science, not an art; "Grammar is the logic of speech," "The beginning of the analysis of the thinking process;" its material consists of ideas and thoughts.

3. The method of science is the method of Grammar; observation, analysis, abstraction, comparison, classification, inference; in short, induction-deduction.

4. In teaching Grammar, a careful distinction must be made between words and sentences used as symbols, and the ideas and thoughts back of the words and sentences. The ideas and the thoughts are the "real things" Grammar deals with.

5. The "parts of speech" stand for classes of ideas; these are reached through the analysis of the sentence, the starting point in the study of Grammar.

6. The first step is induction, the goal of which is definitions, rules and principles.

7. The students in Normal schools must know the nature of scientific definitions, and must be trained to make them.

8. The next step in the study of Grammar is deduction, the application of definitions, rules, principles to new material. This is where most Grammars begin; hence the necessity of preliminary training in the inductive process.

9. The intelligent application of the deductive method in the study of Grammar, especially in teaching Grammar, makes it necesssary for the Normal student to know the form and use of the syllogism.

10. The definitions, rules and principles of Grammar become the premises of the syllogism in the detective process. As the text-books in Grammar in applying the deductive process use only the shortened form of the syllogism, the enthymeme, the Normal student must know this form and how to expand it into the syllogism. Parsing is one application of the syllogism in Grammar; the formal analysis of the sentence is another.

11. If the Normal student is to get the full benefit of the study of Grammar, and be prepared to teach it, he must not only be drilled in all the logical steps and processes of the study, but he must be made conscious of the nature of the logical process and of the steps in the logical process. This is the professional side of the study of Grammar; in short, the Normal student must be trained to handle Grammar as an instrument for training mental powers.

12. This can be done only after the student knows the facts of the science of Grammar and is skilled in using these facts. Thus trained the student will not confound language as an art with Grammar, the science of language; nor will he try to make the one do duty for the other.

Composition—Rhetoric.

1. In the Normal school composition has two aims:
   (a) To teach composition as an art, the art of expression.
   (b) To train the student how to teach composition as the art of expresssion.

2. Like all arts the first purpose is attained by practice, drill until the habit of correct and facile expression is fixed. Maxim: "Learn to do by doing."

3. Like speech, composition is learned by imitation.

4. There must be models to imitate and these are furnished by the best literature, and by the most cultured speakers.

5. Hence much of the work in composition will be conscious imitation and reproduction.

6. Thus unconsciously will the diction and style of the pupils be formed.

7. Besides literature, the observation, the experience, the studies of the students, will furnish material for composition.

8. These materials will help to create an active interest without which effort will be vain.

9. A powerful source of interest is the motive to express, which is not so much self-expression as a desire to influence others.

10. Oral composition should be made the basis of all work in composition, especially in the lower grades.

11. To stimulate self-activity, spontaneous freedom and interest, vital wholes must be the starting point, not words, phrases, sentences, "dead fragments of language," but whole compositions.

12. The order should be first the whole composition, then the paragraph, next the sentence, since the purpose and plan of the whole must mold and vitalize the parts.

13. Simplicity and clearness are the qualities to be secured.

14. The discourse processes, their nature and qualities, should be taught both in connection with the study of literature and the school studies.

15. The above are suggested as some of the fundamental principles that are applicable to teaching composition as an art, as a means of expression. Not only should the Normal student be trained in accordance with these principles to give him skill in expressing and teaching other things, but he should also be trained to use these principles in teaching composition. This is the professional side of the work in composition.

16. The Normal student should know the nature of composition, the purpose in teaching it and the fundamental principles to be employed in teaching it. That is, he should know that composition is an art and that skill is its aim; that skill is attained by practice. He should know that composition, like speech, is largely a matter of imitation, and that children learn a good style by unconsciously imitating the speech they hear and the books they read and admire.

17. He should especially know that composition cannot be well taught by language lessons as such; that is the acquisition of good diction and style by a child, is an unconscious absorption, and not the result of the reflective study of language. The reflective study of language gives discipline and critical power, but not power over expression as such, and, as was said of Grammar, such study is not for young children.

18. This is not to say that errors of speech and style are not to be pointed out and corrected. This is to be done simply as a matter of authority, not as a matter based on a law or principle of language.

19. He is to know that the work in composition must deal with vital wholes, and not with "dead vocables;" that the whole molds the parts, giving them form and life. Thus the parts, paragraphs, sentences, phrases, words are living organisms, and are to be understood and studied only in the light of the whole.

20. The Normal student is to be trained in the conscious application of the principles of rhetoric to the shaping, planning and expressing of his other lessons; the principles of narrative to his history, for example, description to his lessons in science; exposition to science; argumentation to science and history, etc.

21. Practice should also be given to the application of these terms in the preparation of lessons for lower grade work.

PLACE AND RELATIVE IMPORTANCE OF ORAL AND OF WRITTEN WORK IN DEVELOPING THE POWER OF EASY, FORCEFUL, AND ACCURATE EXPRESSION, EITHER WRITTEN OR ORAL.

LILLIAN G. KIMBALL, Oshkosh.

To speak the truth without cost of great effort to one's self, and with strong and certain impress on one's hearers, this is easy, forceful, accurate expression. No other accomplishment is better worth man's cultivating than this, for since man is a social being and destined for advancement through the development of the powers within him, nothing else in the world is so important to him as the interchange of thought, and the only adequate instrument of such interchange is language. A command of this instrument, universal because it is so easy to take up, supreme because it is so difficult to master, is the strongest resource of anyone who cares to exert immediate influence upon his fellow-men. It is indispensable to a teacher, because he must not only move others to action, but be their guide and example. It should be recognized as part of his equipment, something therefore to be acquired by Normal students, a power richly worth whatever it may cost. Every means at our command to promote the acquirement of this power should be rightly estimated by us and duly used. One of these means is practice, conscious, intelligent practice, and this can be afforded along two lines, oral expresssion and written. Let us see what the contribution of each is, in order that we may determine its value and the extent to which it should be employed.

In order to be accurate, that is, to tell the truth, one must have acquired clear knowledge, and he must have done clear thinking. It takes time and concentration to think clearly, and one is much more apt to take the time and make the effort when he writes than when he speaks. Accuracy, too, is the outgrowth of a critical habit of mind, which comes from good training and much careful reading and listening. Ordinarily one is much more critical of himself when writing than when speaking, sometimes, indeed, so critical that all the juice of live thought is squeezed and dried out of his style, but generally criticism leads only to that minute cross-examination of one's thought and that painstaking effort to get it into words that result in the accomplishment of his purpose, saying what he thinks.

Again, when one writes what he has to say, he feels that he has only one chance. If he fails of getting his thought into words, the failure forever stands against him. Hence he realizes that he must have his message clearly in mind before he seeks to deliver it, that it must be conveyed with no hesitation or ambiguity, but with straightforwardness and simplicity. For while accuracy of thought is the foundation of all accurate expression, it does not insure it. For the clear communication of thought, one must have a store of words whose meaning is fixed, narrow, definite. Everyone has three vocabularies, his oral vocabulary, the smallest of all, but the one by which he is judged and estimated, his writing vocabulary, which includes all that is worthy in his oral vocabulary and many other words that he has not the courage or the grace or the occasion to use in speech, and an interpreting vocabulary, which is the largest of all. We wish

the writing and speaking vocabularies to approximate ever nearer to the scope of the interpreting vocabulary. And this growth begins, I think, in writing. Long before one dares to use an unfamiliar word as his own in speech, he uses it in written composition, and so it gradually loses its strangeness.

Then there is more that compels one to use the precise word in writing. In oral discourse, if he sees that one word does not hit the mark, he may explain himself by the use of many words, and so repeat and re-present his thought in new guise that at last it must get into his listener's mind. But in writing one must be sure the first time. He cannot experiment with his readers. Then, too, the spoken word is so soon forgotten. It does not stand as its own condemnation or justification forever, as does the written word. Therefore is the speaker careless, and the writer exact.

But if the habit of accuracy is first acquired in writing, it does not stop there. Inevitably it bends all expression to itself by its compelling force and beauty. It brings recognition and appreciation of itself as it grows, and so it works its way into oral discourse, where it is used at first consciously, with effort, but ever with a more and more free and unconscious domination.

Again, since accuracy is the result of a deliberate attempt, it is attained by an exercise of will, and too often writing furnishes more stimulus to the action of the will than does speaking. Because the writer feels that his words will be weighed he forces himself to do his best, whereas in oral discourse, that is, in school recitations, shyness on the part of the pupil, or the feeling that his expression is only short-lived at best, will often render ineffectual what little stimulus there is. And yet there is a possible condition of oral discourse that might be laid hold of by teachers far more than it generally is, that would furnish a strong incentive to clear speaking. It is this, a feeling on the part of the speaker that he is communicating thought, that he has an audience to be impressed. In the natural life outside the schoolroom, one speaks to be heard and understood, and if he cares greatly to be understood, he speaks well. There is no reason why we should not have this helpful condition present in the schoolroom. I wish that we did not talk of our class meetings always as recitations, and I wish it were not so universal a custom to have pupils face the teacher instead of one another. For inevitably and all too soon they get the idea and are controlled by it that they go to class merely to recite, or give back, to the teacher, what they have acquired. They feel sure that the teacher knows better than they know, and so the recitation becomes mere expression on their part with no end in view. They take it for granted that the teacher will understand what they mean whether they say it or not, and such a presumption is disastrous to accurate expression, for it makes them lazy and slipshod. And yet such expression is not uncommon, so it must be due, at least in part, to the influence of some teachers, those our pupils had before they came to us.

But if accuracy is developed more by written work than by oral, it is no less true that ease is gained sooner through much practice in speech. By ease we mean readiness, fluency, such a command of words as will enable a speaker to summon the right one at need, and also such a command of sentence structure as will enable him to complete correctly the sentence that he has set out to build. If one is an

easy speaker he is comfortable and confident while he speaks. There is an absence of anxiety or painful effort on his part that makes it a delight to listen to him. It has been said that 'true ease in writing comes by art;" so does it in speech, and one can master the art only by practice. The teacher finds a hundred occasions demanding speech where he finds one for written composition, hence the Normal student should have the bulk of his practice in oral discourse, and all his teachers should see to it that this practice is so carried on as to increase his facility. It makes little difference except to the writer whether an article be written with facility or not, so long as the outcome is good; but in speech a lack of ease in expression impairs the very thought itself.

We have said that to be easy in speech one must have the habits of building good sentences and of using precise words. To effect the acquirement of these habits by students, there is both destructive and constructive work to be done by the teacher, for bad habits must be corrected and good ones formed. There are three distinct steps in this process: (1), becoming aware that one has a bad habit; (2), recognizing it when it has controlled one s speech; (3), voluntarily opposing it before it can control speech. After the third step has been taken a sufficient number of times, the bad habit is supplanted by a good one. The first step is a very important one, and is not taken by the student without assistance. Neither does he take the other two steps without constant reminders. And there is no other opportunity for these reminders so vital as the ever-recurring ones furnished by speech. For oral self-expression is self-revelation, not of one's highest possibilities in language, but of language habits, the level of attainment. And the corrections, suggestions, and assistance of the teacher in oral discourse benefit not only the one speaking but the whole class, or, at least, those who have ears to hear.

Frequently a severe restraining criticism is necessary after facility in the use of words has been acquired, for there is a facility that is mere glibness, justifying the remark that "it is the purpose of language to conceal thought." Sometimes this facility is the means of covering up its own existence, so that it is not suspected either by the speaker or the listener. It is a fault hard to overcome, and utterly incompatible with forcefulness. Closely allied to it is another danger of oral discourse, namely, the great freedom it allows in respect of sentence structure. For it is permissible in speech to break off the sentence and begin anew, or to modify the structure during the progress of the sentence. To one who can build sentences correctly this latitude is not dangerous, just as slang is innocuous to a master of English, but to beginners this freedon is exceedingly harmful. It makes them unregardful of plans, and ends in their making none at all. They merely think aloud, and do not hold themselves to the rounding out of every thought. Therefore it is that teachers, all teachers, should know that not all speech is practice, but that to produce good results speech should be directed by intelligence and controlled by will. The teacher must enlighten the understanding, be constant in his criticism, helpful by the example he sets, and inspiring by the ideal he presents.

We come now to the third quality of all effective speech or writing, force. This does not always mean energy. It is not mere brevity or conciseness. It is not dependent on epigram, nor originality, nor

peculiarity. It is simply the art of putting things so that they make a direct and powerful appeal to the mind or feelings of one who hears or reads. It does not always come by much striving for it, and simplicity, not elaboration, is its handmaid. It is more to be desired than either of the other qualities, accuracy and ease, for without it accuracy has no life, and ease is but the ineffectual trickling of water upon sand. Force characterizes discourse of many widely different styles, but back of it are always these two essentials, clear thought and firm conviction. To be forceful one must know what he thinks and believe what he says. Force is found in expression that is born of an impulse, spoken under stimulus, and for a purpose. An impulse gives spontaneity, life, to discourse, a stimulus provokes the will and sustains effort, while a purpose regulates the organization of material. It may not always be possible in school exercises to have students speak or write from an impulse, but it is always desirable, and we should make the most of opportunities that present themselves. Instead of this we often snub or discourage expression by the child who had a desire to say something, forgetting that what he desires to say will be said better and be of more benefit to him than what he is forced or expected to say. The stimulus is easier to find. It is not far to seek, and it should be allowed to exert its full power. In oral discourse the idea of communication, if always present, would, I think, prove a strong stimulus, and a healthy, natural one. At the same time it would furnish an efficient purpose.

Force is impossible if divorced from accuracy, so that all the requisites of accuracy,—knowledge, clear thought, correct sentence structure, precision in words,—are necessary to force. Besides, there must be the organization of material, for unless it is presented in the right order, it fails to produce a cumulative effect, and is therefore weak. All of these requisites involve effort and preparation, hence an appreciation of force may first be gained through writing, where composing is a conscious process, and there is time and opportunity for revision. But if it is first manifested consciously in written discourse, it is needed most in speech. That is where it must finally come; hence, while instruction in securing force may be carried out first in writing, it is through constant practice in oral expression that this quality must become a characteristic of one's style, inseparable from all his expression. For all day long the teacher is called upon to be forceful. He must be impressive in all that he says,—in his directions, his explanations, his appeals. I believe that if we can so direct the practice in oral discourse that our students get in our classrooms as to make them simple, clear, and convincing in all that they say, or if we can make them see the value of such expression so that they will never leave off striving for it, we shall send them out with a power in the schoolroom greater than that afforded by scholarship or pedagogy.

To sum up, the conclusions that I have reached are these:

(1) A conscious acquirement of accuracy and force in written expression precedes the habitual manifestation of it in speech.

(2) A writing vocabulary characterized by precision and copiousness is a preliminary to such a vocabulary in speech.

(3) Ease is a characteristic of language that finds its greatest need and place in speech.

(4) There is much more abundant opportunity for oral discourse in school than for written, and impulse, stimulus, and purpose may be

present there more generally and more powerfully than in written work.

(5) Not all oral discourse is valuable as practice. To be so the teacher must criticize, teach, encourage, and inspire.

(6) A teacher finds far more occasions for oral discourse than for written.

Hence our students should write mainly for the aid that writing gives to oral expression. The greater part of their practice in expression should be oral, and this practice should be afforded in every class and rendered helpful by every teacher.

RHETORICALS: TRAINING IN USE OF ENGLISH; TRAINING IN EXPRESSION; HOW MADE MOST EFFECTIVE.

ROBERT RIENOW, Whitewater.

Some one has said that "Everything outside of God is expression." This concise statement leads us at once to the true purpose of all rhetorical exercises, the development, in the pupil, of the power of oral expression, that power by which he brings himself into living contact with his fellow men; that power of bringing to his companions the innermost thoughts of the mind and the emotions of the soul; that power of voice and body by which he shall impress his personality upon his surroundings, and "bring things to pass" by virtue of his imposition of himself upon the world around him. In speaking of oral expression I would not confuse it with acting, the function of the stage. By oral expression I refer particularly to the power of the voice, aided by mobility of countenance and graceful gesture, to express thought and emotion. On the other hand I would not confuse such work in expression with the highly elaborated fads of Delsartean Elocution, where attention is directed to the largely mechanical means of conveying thought and feeling. The Normal school has a function peculiarly its own in this most important field of work. We cannot hope to turn out teachers of elocution, instructors in dramatic art, polished orators, or accomplished readers. We have a higher ideal than any of these, we have the responsibility of sending into the schools of our state teachers who can arouse in their pupils the old love for public speaking, the desire to express in strong, effective, enthusiastic and graceful manner their thoughts and feelings; teachers who shall make every recitation an exercise in the use of good pure English, and who shall bring to their pupils the example of graceful bearing, enthusiastic presentation of work, and an effective yet unassuming delivery of beautiful and soul-stirring literature.

Supt. Harvey in his "Manual for High Schools" makes a statement which those of us who come in contact with district school pupils in the reading class will gladly assent to: namely, that "Expressive reading has become a lost art in our schools." Now, while it is not my purpose to cover the ground of "expressive reading," I believe that the function of rhetoricals is so closely allied to that of reading that they must not be separated. Rhetorical work is one of the most effective methods of developing expressive readers and fluent talkers. The rhetorical exercise and debating society are to the department of expres-

sion what the experiment is to the science teacher, the means of putting into use and practice the theory he has been developing. Rhetoricals should be made the laboratory of the reading teachers. They give the best opportunity of testing the pupil's power of interesting his hearers, of impressing himself upon them. There is no exercise that taxes the pupil's power to use good English more than rhetoricals. Under the careful and ever watchful criticism of the teacher he is able to recite his declamation with some degree of success, he may even read an essay so as to be heard and understood, but place him before an audience and he is himself once more, all his original habits crop out, his old mistakes appear, his weakness is evident to all and to himself especially. He finds, especially in the debate, that words are intangible, evanescent things easily eluding his grasp; that constant, patient, and persevering practice is the only means of giving him that power to use good English readily and spontaneously. Therefore I believe that work in debating should be under some regulation of the school and in the first two years be made compulsory and a part of regular rhetorical work. I am sure that such practice as is given by the well delivered declamation or the well prepared debate or extemporaneous speech cultivates a power over language that is secondary to no exercise invented by Rhetoric or Elocution.

It has been said that New England has been so long free from the baser evils of politics because of the training given her citizens in the Town Meeting. Ought we not to send into our common schools teachers who can bring to their pupils the inspiration of example, the strongest of all examples, of clear, concise, correct, energetic public speaking? Will this not bring to our embryo American citizens a taste for participation in the politics of their district or village, which not even a knowledge of civil government can create? Our difficulty lies not so much in the ignorance of our citizens as in their inability to participate in public life. The school should be to the nation what the town meeting has been to New England.

We are often told that the age of oratory is past; let us rather say it has but changed its form from flowery bombast to lucid exposition of fact for a well defined purpose. The opportunity is broader today for public speaking than ever before, and the most effective public speaking is the direct result of instruction and practice. Orators may be born, but public speakers can be made. In no profession is this more true than in that of teaching. Never before has the demand been so great for teachers who can present their ideas clearly, incisively and earnestly to public gatherings. The time is past when a teacher can fortify herself within the four walls of her schoolroom and feel safe in droning with monotonous weakness her daily lessons. The proper classroom presentation of matter, the County, State, and National associations, in fact, public gatherings of every size and description call for the power of effective expression. How many a paper is spoiled by poor delivery, timidity, self-consciousness; how many an improvement in schools is lost because some diffident, weak teacher "just didn't dare ask for it!" I have had seniors in my classes who, after teaching six years, could not stand before a class and make a recitation, much less read a simple poem effectively. Every week we listen to essays spoiled by poor delivery and weak voices.

Here lies the work of Rhetoricals. They should aim at self-reliance and self-control. In the delivery of his debate or declamation the pupil

for the first time perhaps really finds himself, really comes into conscious knowledge of his ability not merely to instruct an audience but to move them, to persuade.

But I hear you say, "What place does the essay find in the Rhetorical program?" I believe that is the best essay, reads the best, that was written to be read; written with the audience before him, with his purpose clear. This will bring interest and life to the work, for he knows he is to be judged by his production and by his delivery of it. I do not believe a manner of delivery can be taken on after an essay has been prepared that will harmonize with the production, rather as some one has said, the "preparation of the matter forms its own manner."

So far I have had in mind as the make up of Rhetoricals, work in Declamations, Essays and Debates. That the results I have spoken of can be obtained by these means is beyond dispute. Many a boy has been led to his life's work through rhetorical work well conducted.

But in rhetorical work one thing is almost completely neglected that deserves a high place in training in the use of English, namely, the extemporaneous talk. I am convinced that if some of the time spent in much writing, which Bacon tells us "maketh an exact man" were spent in extemporaneous talking, which we are told "maketh a ready man," our pupils would be the gainers thereby. There is an inspiration, a spontaneity about talking that is refreshing and original. The style of many of our so-called orations would be less stilted and mechanical if the author would only write as he talks. The declamations and essays would be more natural and be given with far more energy and enthusiasm if the reader had only been taught to talk. Now, in the recitation with from ten to fifty pupils to look out for, the slow, backward talker cannot be allowed to use up valuable time of the class. Oftimes he is a clear thinker, and faithful student, but "O, so slow." What can be done for him? Certainly the recitation is no place for his training. Where can he go? In many of our schools there is no place for him save in a literary society, where he is soon crowded out by more ambitious students. How true it is that some of our poorest students, if brought to a realizing sense of their ability, and taught the art of oral expression, would make our best teachers.

We have thus far seen the work to be done through Rhetoricals, which I have made to include much more than is now covered by that term. I have intentionally done so for I am confident that we are neglecting many rich fields of labor for lack of proper organization and use. I am convinced that work in debating, extemporaneous speaking, declamation and essay reading should be a part of the department of oral expression; that such work, whether done in a literary society or at the so-called Rhetorical exercise, should be planned and guided by some member of this department. In an experience dating from my earliest High school recollection, including four years of High school teaching, I have become convinced that Literary societies left as an optional matter to students reach only those who are interested and able, and therefore need the help least; that considering the time spent and work that might be done, they are doing next to nothing. In our Normal schools just the class of pupils we want most to receive such training, are not getting it; and never will through the present Rhetorical programs. The best work I ever did in a Literary or Rhetorical way was when I mapped out the required work for every class, including work in Debating, Extemporaneous speaking, Declamation and Essays,

had such work done in a Literary society Friday evenings and was present myself to see that it was done. By such a means more attention can be given to individual pupils, and certainly here individual work will count more than in any other place I know of. This work so unified and classified might start with work in enunciation and pronunciation for those who needed it, to be followed by work in interpreting thought and delivering declamations for clearness and force of expression; this followed by work in melody and quality and interpretations of emotions. Such work would supply material in class, founded upon careful training and a clear understanding, for the weekly declamation on the rhetorical program. From a class whose purpose was drill in debating and extemporanous speaking we could draw material for a short ten minutes' talk to the school. This work would of course be confined to 1st and 2nd year pupils. By a careful debate program every pupil during his first two years should be required to debate at least once a quarter, his debate being approved by a member of the department. Such work would of course necessitate the entire time of one person, but could be done and with splendid results. We could in this way keep a careful and salutary hold upon literary society work and make it do its proper share in the work of oral expression.

The girls of our Normal schools must have the same training as the boys in the work. Two thirds of our students are girls and their natural timidity holds them back from such work. On the other hand many of our young men need holding back, they would give all their time to debates, oratorical and declamatory contests. Let us aim to develop the weak, to give them confidence, self-reliance, and fluency. This can only be done by the opportunity being created and their being compelled to make use of it. At first it may be hard for them, their first utterances will be slow and halting, but in a short time they will have had revealed to them hidden resources and talents they have never dreamed of, and from that time on they will do from choice, what they have been compelled to begin.

All this early work must be prepared under instruction. I cannot but believe that much harm is done by the preparation of declamations pupils never understood and never are called upon to recite. Time used in memorizing selections without a knowledge of the content is worse than wasted. Half the work well done is much more to be desired than the present work poorly done.

If the Literary society could only be utilized for such rhetorical work, weekly Rhetoricals would be unnecessary and undesirable. The habit of coming before an audience poorly prepared is a pernicious one, and is, I believe, fostered by too frequent rhetorical programs and too little preparation in the line of study and rehearsal.

The work I have outlined may seem extensive but I am certain of one thing, it is not out of proportion to the benefits to be derived. Rhetorical work should be made a part of the work in oral expression, that our teachers may carry a more exalted idea of its real purpose and usefulness with them to their schools. Why should teachers despise rhetorical exercises? Because they see in them little or no relation to their professional work. If every exercise of that nature were presented to them in the light of an exercise in oral expression and in the spirit of an exercise in reading, I am sure it would attract more interest. If it were understood that a pupil's rank as a teacher is to be

decided in a degree upon his or her ability to appear well on the platform and read or recite creditably, more pains would be taken in that work. Our pupils feel too much that "it makes no difference how I say a thing if I only know it." In fact they often become quite indignant if criticised on expression in class work. Much of this fault lies at our own door. We have made too little of the beautiful and useful art of oral expression. We think little of that which is not reduced to writing. All his tests and examinations are in writing, his whole school life has been filled with writing. Let us bend our energies in another direction for awhile, and teach the true importance of the spoken word; open the windows of his soul and let him pour forth "himself," for not until he has made the printed page his own, not until he has entered into its life and made it a part of his life can he really appreciate it; and then only partially until he has expressed it.

IN WHAT WAY MAY THE WORK IN ENGLISH BE MOST EFFECTIVELY SUPPLEMENTED BY TEACHERS IN OTHER DEPARTMENTS?

ALBERT HARDY, Platteville.

I. Every teacher in the Normal school should be the assistant of the language teacher. In fact, the teaching of language is something no teacher can escape. He may or he may not teach the arithmetic or the geography that he sets out to teach, but he will teach English by his example and by the ideals that he reveals to students, whether he will or no.

II. The teachers of all other subjects must realize that "Impression is completed only by expression," and that it is just as much their business to secure a clear, logical statement of the subject matter, as to see that the facts of the subject matter are mastered.

III. He should remember that clear thinking can be secured only through clear logical expression, and that every lesson should be a language lesson.

IV. As oral speech is the foundation of written composition, the pupil should be required and trained in every recitation to organize his ideas and language in accordance with the simple fundamental laws and forms of discourse, according as the subject matter of the recitation requires narration, description, exposition, or argumentation. There should be occasional written recitations and reviews whose main purpose is to train and test the power of pupils so to organize and state their knowledge.

V. Eternal vigilance is the price that must be paid for excellence. But it will be time and effort saved in the end, as it will re-act on the pupil's power to think.

VI. The teacher of Latin and German should always require as the final evidence of mastery, that translations be expressed in pure, idiomatic English. There is no other evidence that the pupil comprehends the thoughts of the original.

VII. The Socratic method of conducting a recitation may do for developing a subject, and to stimulate thought, but the topical method only will show complete possession and power to prove that possession.

VIII. At first teachers should give model lessons, after the facts are learned, and require pupils to reproduce by imitation largely; but as soon as possible pupils should be required to organize and completely express the lessons. This power only is the test of mastery, and only when he can do this, is the pupil prepared to leave the subject.

IX. Until the teachers of the Normal schools feel the transcendent importance of these rules and principles, and put them into daily practice, the English will not be materially improved and the Normal student prepared to teach.

X. It would be well for teachers of other subjects to report pupils whose language, spoken and written, is not clear and correct, and that such pupils be required to take extra work in English until their language shall be up to the required standard.

REPORT OF LEADER.

I.

GRAMMAR.

It was voted to recommend the following statement of purpose and scope in Academic grammar work in Normal schools:

A. Purpose.

The purpose of teaching English grammar in the Normal schools should be:

1. To awaken in the minds of students a consciousness of thought processes;

2. To require a reasonably comprehensive mastery of the scientific structure of the English language;

3. To train students to use the principles of grammar as aids in interpreting literature and in correct use of the language.

B. Scope.

The scope should include a study of the kinds and elements of sentence structure, and the classification and inflections of words.

Moved by Miss Kimball and carried that the plan of teaching Grammar by application of the four fundamental propositions as presented by Mrs. Madden of Milwaukee Normal, be recommended for use by teachers of Grammar.

The Scope of Composition as an Academic Subject

I. Punctuation: This should fit the student—
   1. To punctuate intelligently what he writes.
   2. To criticise the punctuation of others.

II. Words: This should—
   1. Increase the student's vocabulary.
   2. Render his use of words more precise and definite.
   3. Enable him to avoid common errors.
   4. Enable him to detect and account for errors in language of others.

III. Practice in securing the essential qualities of good style in the discourse, the paragraph, the sentence.

IV. Kinds of Discourse: Narration, Description, Exposition, Argumentation, as exemplified in the single paragraph and in continued discourse.

1. The choice of theme and title.
2. The preparation of an outline.
3. The purpose, nature, and characteristics of each kind.
4. How these characteristics may be attained.

The Scope of Composition as a Professional Subject.

The student should learn here:

I. The purpose of Language in the Grades. It is to train pupils to express themselves with accuracy, ease, and force, both orally and in writing.

II. The Means to be Employed.

1. Conversation.
2. Narration—
   (a) of stories told or read.
   (b) of stories in pictures.
   (c) of original stories.
3. Exposition—
   (a) based upon experience.
   (b) based upon information acquired in other studies.
4. Description—
   (a) of pictures.
   (b) of objects.
   (c) of persons.
   (d) of places and scenes.
5. Persuasion—to be used in letters.
6. Models from good authors to re-enforce instruction by teachers.

III. How to Employ the Means.

1. How to select stories, pictures, models, etc.
2. How to present them so as to lead to good results in language.
3. How to criticise—
   (a) What.
   (b) In what order of importance.
   (c) How and when.

IV. How to Grade the Work.

(a) In what order to present the different kinds of discourse.
(b) In what order to teach the characteristics of each kind.
(c) What to criticise in different grades.
(d) What kind of work to expect in different grades.

It was moved and carried that Mr. Hardy's recommendation concerning the aid to be given work in the English Department by other teachers be approved by the English Section.

ALBERT HARDY.

GEOGRAPHY.

Leader, F. E. MITCHELL, Oshkosh.

PURPOSES AND SCOPE OF THE WORK OF GEOGRAPHY IN THE NORMAL SCHOOL.

J. A. MERRILL, Superior.

I. General Principles.

The organization of the public school makes it necessary that it provide the student with the elements of good citizenship. In order to do this it is fundamentally plain that the first problem is to put the child in the possession of his rational self. In the accomplishment of this, courses of study are made through which the child is led with the idea that his growing mind will assimilate the proper amount of nourishment and thereby bring him to mental adolescence.

Mankind has progressed from ignorance to civilization along well defined lines of growth. While these lines are variously connected with one another, they may in their embryonic relations be considered to represent expression, numerical relation, and science.

In this view of the case, geography is placed in the course of study. Broadly considered it is a part of the mental food of the child, specifically considered it represents one of the great lines of human development, namely, science.

The growth of science is the material progress of man in his hand-to-hand struggle with nature. The forces which govern his progress as well as the forces which govern the nature with which he deals are geographic factors, and the relations which these various factors sustain to one another are geographic relations.

Geography, therefore, in representing the scientific side of racial development must also be to the child the scientific atmosphere in which his mind develops. It is in the earlier years the contact with nature, which is so essential to mental vitality, and in later years it diverges into a score of lines of investigation, each of which has enriched humanity. Therefore, with this fundamental principle before us the position of geography in the course of study cannot be doubtful, nor the source of its subject matter a question.

In the Normal school the course in geography should give the students who will become teachers a thorough knowledge of the principles and relations which govern its subject matter and the ability to organize its multiplicity of details into simple and logical groups. It may be the same in kind as in the common schools, although it should perhaps occupy a higher plane of reasoning and give a broader understanding of cause and effect.

The following is the general statement of such a course which it is believed will be found helpful in Normal schools:

II. Purposes.

1. A principal purpose of geography, briefly put, is to cause the student to react against his environment and to make him an intelligent

master of his surroundings. The vagueness of this proposition will disappear somewhat if we consider the fact that the mental activity resulting from acquirement will make the child a thinker and will lead his thought to be self-directive. Furthermore, this, being a consideration of causes and effects, will lead the individual to the search for primary causes and to expect legitimate effects from propositions under consideration.

2. It should develop the broadest sympatny and appreciation for all nature especially the plants and animals by which the child is surrounded. A proper sympathy with nature has been the dream of the educational reformers and is no inconsiderable basis for morality and ethics. It lies at the foundation of the arts as well as the sciences and keeps the soul in a transient mood which welcomes the approach of truth from whatever direction.

3. The study of geography makes the person an intelligent reader and traveler. These are the richest paths which lead to culture, and no one who has contemplated the trips of Franklin, or Emerson, and the travels of Carpenter, Stanley, and Livingston, as well as a score of others, can deny that this element opens up one of the important phases of education.

III. Subject Matter.

In a Normal school geography should be taught in its correct relation to other subjects. Its subject matter is the same as its pedagogical content and both are in harmony with the fundamental laws that have been heretofore considered.

The following suggestive course is based on the supposition that evolution is the proper conception of education and is therefore the basis for teaching and arrangement of subject matter. The general proposition is that geography comprises a knowledge of the world with the forces that build and destroy it. A knowledge of the life which it has developed and now sustains, and man's relation to the phenomena around him. This may be further subdivided into the following lines of development:

1. Geological. This begins with a consideration of surface and ends in a conception of the topography of the world.

2. Biological. This begins with the plant life which draws its sustenance from the soil; it ends with the highest form of animal life with which mankind has to deal.

3. Industrial. This begins with the simple management of natural plants and ends with the complex industries and the commerce which sustains the civilization of the world.

4. Sociological. Beginning with the commercial enterprise which gives men occupation and obligation, this line ends with history which is largely the result of the commercial relationship of men.

It will be noticed that each of these lines of development begins in the experience of the child, or in the experience which may be his, and ends in a concept which is world-wide in its application. Each line begins in a unit which can be observed and handled and ends with an idea much of which is to be imagined and correlated with other complex notions which go to make up the world to the individual. In a Normal school the students should have a firm grasp of this thought which will enable them to locate any subject under discussion in its

relation to the world idea. Thus they will be able to correlate this work so that the work of the various grades may be adapted to the widening horizon of the growing child.

IV. Scope.

Since geography includes the subject matter above cited it may be made a resting place for much, if not all of the modern so-called nature study. The most serious objection raised against nature study in the grades is that it lacks definiteness both in the beginning and in the end sought. It is often given not so much to enrich the course of study as to make it more attractive, and it therefore loses its force by lack of correlation. Nature study given in connection with geography is governed by a fixed plan and should be a prominent feature.

2. Local geography also has a prominent place. Not alone the local geography which makes the child an inquirer into his natural surroundings, but that which looks upon the community as a miniature world containing, as Froebel declares, "all in all." This part of the subject considers those geographical units and their relations to geographic forces which, when thoroughly mastered and used with proper supplementary work, will bring the great and the distant within the grasp of the mind. Local geography, therefore, is a series of selected types through the medium of which the uttermost parts of the world are understood.

3. World geography, the legitimate outcome of local geography, has an important place in geography teaching and must ever remain the most important feature of geography. Its importance does not demand that it shall receive the most time and attention, but that it be approached in such a way that it will receive the deepest thought and the most concentrated attention. It is looked upon as the sum total of geographical relations.

4. Furthermore, the scope of geography includes certain folk-lore stories and myths which are often given without reference to a definite plan. They may be made to illustrate the method of history formation, to preserve localities which it is desirable to remember, and to correlate knowledge of the development of the people with the natural conditions which foster such development. In the lower grades simple folk-lore may be given in the form of stories increasing in the higher grades to the reading of fairy stories, biography and history.

5. In geography as in other subjects the study of the English language should have a place, and hence the full import of geography is not realized until the gathering of ideas, as before stated, is crystallized and expressed in forceful, vigorous English. The composition writing which necessarily accompanies every original exercise in geography, develops the expression and increases the value of the exercise in many ways. Such compositions should be the pleasant expression of intelligent thought rather than an accumulation of statistics gathered from the usual sources. It is manifestly natural for a student to write fluently on a subject in which he is interested and about which he has thought intelligently, and consequently geography will contribute in no small degree to the study of English.

V. Plan of Work.

Though not in strict compliance with the wording of my subject, I desire to add a few brief points on the plan of work necessary in the foregoing method.

1. It is throughout a study by types. These types are studied with greater or less fulness as the nature of the types demand and are combined by the process of reasoning into larger concepts. Thus, in the study of North American Continent, the Mississippi River Basin is taken as a type of depressed surface; wheat, cotton, and corn raising as typical industries of production; cattle raising as a type of industry of manufacture; iron, of mining, etc. Finally these notions are combined into the larger unit-continent.

2. Systematic field-work is a necessity. By this is meant that it should have a definite place in the course and should be accurately planned and worked out by the teachers before the students are introduced to it. This does more than illustrate geographical definitions, it *develops* ideas and makes them living thoughts.

3. Map-drawing is a means of combining individual types and is used in contour, chalk model, or diagram, according to the nature of the combination desired.

4. Much emphasis is placed upon interpretation of pictures as well as maps. Pictures may be gathered from many sources and combined to suit the phases of the subject under consideration. The thought thus gained may supplement or take the place of the printed descriptions.

5. Considerable energy should be put on systematic drill, which will not only freshen the mind in the details studied, but will bring new combinations and generalizations when viewed from different standpoints. Frequent correlation of the old and the new, the past and the present, forms a mental atmosphere of cheerfulness and confidence as the complexity of the subject increases.

DISCUSSION.

CORNELIA E. ROGERS, Whitewater.

Before one can have an intelligent opinion of the purposes and scope of the work in geography in the Normal school, he must have a clear understanding of what geography is, and an enthusiastic interest in everything that pertains to the subject, and to the successful teaching of the subject. Prof. Merrill's paper shows clearly that he has such an understanding and interest; and I indorse his paper with emphasis. But I wonder where the time is coming from in which to develop the subject in such a manner as he would have it developed.

The purposes of geography in the public schools also obtain in the Normal school; while in addition to these, the Normal school gives to the pupil that training in geography which will enable him to teach the subject with the least possible loss of time and with the least expenditure of effort.

If pupils who enter a Normal school only knew what many people suppose they know, it would go far toward settling the questions of purposes and scope with which we have to wrestle. But experience has proved that they lack a knowledge of the subject, and often an appreciation of the subject beyond the idea of locative geography. Geography is the one subject in the school curriculum that brings the child in touch with the physical forms, the active forces, the living phenom-

ena around him, and teaches him through sense-perception to know and feel his rational place in nature. Everyone admits that it is good pedagogy to begin the subject of geography with the child's environment, for in dealing with his geographical surroundings the pupil finds abundant material with which to exercise his mental powers. He observes, he records, he reflects, he discovers natural laws, and the source of all law, and brings himself into harmony with law. He realizes the pleasure of mental activity. He craves more knowledge and desires a continuation and enhancement of the pleasure of self-activity. No teacher can do more for a pupil, and no other subject yields so rich a field for this kind of thinking as does geography. Now the pupil on entering a Normal school has never been taught to think of geography as including such knowledge, relationships, and values. Then good common sense demands that he shall be taught the home geography and its values, that he in turn may be able to teach better than he has been taught. This takes time, as I know from experience, for it is not something that can be poured into and superimposed upon the mind or the pupil.

Geography "opens the door" of the sciences and allows the pupil to get glimpses of those broad, rich fields which will surround and influence him through life. In dealing with these elementary facts in science there is danger of distraction and loss of mental energy. It is found that botany and geography, for instance, have facts in common and therefore enter each other's domain; but the geography teacher will see and teach the geographical relation and not the botanical science. These glimpses of elementary science, rightly considered, are in themselves sufficient reason for teaching geography in the grades. Meager as these facts and relations are, they enable the children to be more on the alert for things and the causes of things, and more rational in their judgments of every day phenomena. As most pupils never reach the high school, the science taught in connection with geography is the sum total of their science training; but even this is often a lifelong inspiration to them. Then it behooves the Normal school to prepare teachers to teach this large and important phase of geographical relations. It is vital, and must not be left out of the course.

One purpose of geography in the Normal school, it seems to me, is to give direct information about the earth, and its relations to man; and a knowledge of how to teach those facts and relations the most effectively. The one thing that I should like to know is, what phases of geography are the most valuable in giving knowledge and power.

The "method of the what" is a grave question when earth and her relations stare us in the face. Any general outline is almost endless, and the mass of details swamps one. Of the wealth suggested in the outline what shall we select that shall be typical of its kind, and that shall be so inspiring that the pupil will continue his observation and research? There is so much that is valuable that we feel that we ought to do this, and not to leave the other undone. What part in the outline makes for power and strength? What will most broaden and deepen and cultivate in the time at our command? Is it best to let each teacher in the Normal school do as he pleases?

This subject matter we must not only adapt to our own pupils, but we must afterwards translate it so that our own pupils shall be able to adapt it to the capabilities of the children of the state. Otherwise they will teach what we teach and as we teach it, without regard to

the age or ability of the pupils taught. The public school lays the foundation for success in life, and we are training teachers for the public schools. Has this anything to do with purposes and scope of the work in geography in a Normal school? It goes without saying that a good business man in these days of close competition and large mercantile fields must know the details of his father-land. The time is near at hand, is even here, when a knowledge of the details of the civilized world is an absolute necessity to commercial success. Then the teachers that we train should be able to impart the basic knowledge and principles of geography which will enable the young man on leaving school to continue to acquire, arrange, and hold that body of geographic knowledge which is to be found in current literature. This takes time.

Another purpose of geography in a Normal school is to give to the pupil a basis for the study of history, which is an important subject in every course of study. What phases of geography will do this? Diesterweg, Hinsdale, Higginson, Draper, Shaler, and scores of others say that in order to understand the migrations and development of nations, and the great military operations of the world, with their causes and effects, one must know in detail the arrangement of mountain chains and valleys, plains and their rivers; must know climate and soil, mineral wealth and the possibilities of agriculture. Surely this determines a large factor of the scope of geography in a Normal school and gives sufficient reason for teaching geography broadly and deeply.

And further, detailed knowledge of one's country lays a stable foundation for intelligent patriotism. We love best that which we know best. If we know our country well, it goes a long way toward giving us courage to die for it, and even to live for it. Has not the day come when he who legislates *wisely* for his fellow citizens must be a man who has read his geography lessons well? And in this country where the public school boy of today casts his ballot on the morrow, should not geography be a prominent subject in the broad training for citizenship?

I do not wish to be understood that I think the universe turns on geography (but the universe is geography all the same), but inasmuch as geography gives mental discipline of a high order, gives information valuable in itself, gives the basis for the sciences and for history, aids materially in business success, broadens one's sympathies, stimulates patriotism, surely it must be considered a study that is full of riches, and that requires a great deal of time.

In attempting to put different studies in their proper places, one class of educational reformers places geography second only to arithmetic in mental discipline; another class second only to history, and then admits that unless history teaching be based on geography it is building a house on the sands; another second only to literature in inspiration, and says, substantially, that the poet gets most of his inspiration from a close study of geographical relations; and still another class makes geography the central study of a great scheme of concentration; then surely the Normal school is justified in giving geography a large place in its curriculum.

HOW FAR MAY THE STUDY OF GEOGRAPHY TEXT-BOOKS BE SUPPLEMENTED BY OUTSIDE READING,

(a) In the Normal school? (b) In the common school? (c) In what way can the work be organized?

ALICIA DE RIEMER, Stevens Point.

Relationship is the very main spring of geography. Without it the subject is limited, devitalized and uninteresting, with it new life is awakened, the perspective enlarged, and the conceptions broadened. If we accept the current definition of geography, namely, "a study of earth in its relation to man," we recognize inevitably the links of relationship which establish mutual interdependencies between the inorganic earth on one hand, and man on the other. At the very outset we admit that, properly treated, no phase of geography should be studied by itself but solely with reference to its relation to neighboring fields of knowledge, such as history, geology, meteorology, botany, anthropology, zoology. To what extent one is justified in encroaching upon these neignboring fields of science, aside from the material found in geography text-books, requires much sound judgment and careful discrimination.

It is true that all of our modern school geographies treat of these allied sciences but they are not wholly comprehensive nor the only desirable sources of help. Most of them are marvelous encyclopedias of the universe, dealing with a mixture of sciences without coherence, without logical sequence, sure ruin to unity of thought. Dr. G. Stanley Hall, in a recent address before the New England Association of School Superintendents, remarked that our geographies would lead us to believe that "not the serpent, but the sausage is the emblem of wisdom."

To limit one's knowledge of geographic facts, then, to the matter contained within the covers of most modern geographies, would lead to distraction. Furthermore, it means stultification and stagnation. Geography is a living, a progressive subject. The face of the map is being changed daily. To keep abreast with the times we must look beyond the text by constantly referring to the newspaper and the current magazine as well as to recent book publications. We are to blame if the student finds the daily lesson a dry, indigestible bill of fare.

No teacher of geography need be, should be entirely dependent upon a text-book. The primitive custom of assigning a certain portion of the text consisting of certain absolute, empirical statements to be memorized is characteristic of American methods of teaching the subject. In my judgment, the text-book should be used in the Normal school merely as a foundation reference, the course in geography being graded into topics fitted to the peculiar needs and interests of the class. We study a *subject*, never a text-book. In accordance with this idea we cull from all sources wherever we can find help. By such a plan the student is thrown quite entirely on tne resources of the library for daily consultation and reference. Such a plan is particularly adaptable and effective in the geography work of the Normal school owing to the following conditions: First, a large proportion of our

students come to us with a meager knowledge of the subject proper, with much less knowledge of correlated subjects and with little understanding of how to use books. Their recourse to current literature, much less to a well selected library, has been limited. What they need, then, is a broader conception of the subject, a wider range of information and training in seeking new material and organizing it in a logical way.

Again, one of the aims of geography work in Normal school training is to show the student how to teach, but he must know first what to each. No subject in the entire curriculum calls for a wider range of information than geography. The most resourceful instructor, then, is he who knows his subject, who is able to marshal into line his information at the opportune time to the best advanage, to be able to suggest material apropos of the subject in hand. He may possess a magnetic presence, may be pedagogical in his reasoning, may have tact, but these are ineffective for good if he be not thoroughly acquainted with his subject.

There are two ways of securing wider information, viz: by travel, and by reading. The one is not always possible, the other indispensable. Reading with a purpose is exercise, without purpose we merely saunter. Well planned lessons, which require a reasonable amount of investigation and which give the student training not only in seeking, but in testing and in arranging geographic facts are particularly valuable and the library should offer facilities necessary for such work in geography.

Supplemental work gives the student greater independence, opens his eyes to the splendid storehouse of material outside of the textbook, brings him in close touch with many sources of information, makes him more generous and magnanimous in judging the disparities and contradictions which exist among different authorities and makes him an enthusiast.

But one great difficulty in realizing all our plans is lack of time. Ten weeks or three months in which to cover the entire geographic field, pressing demands upon students along the same line in other departments, the difficulty of securing books, pupils widely diverse in ability to comprehend and to organize material, these are a few of the drawbacks. It is obviously impossible with these demands and disparities to hold our Normal students responsible for doing outside reading of more than a very few entire books during the year. Original research, that is, to add something to the cause and progress of the science, is entirely out of consideration; but, whatever the method of work pursued, supplementary reading of certain definite chapters or pages bearing upon the lesson each day is possible and extremely desirable.

Let us step into the library and solicit the cooperation of the librarian. Let us learn what volumes bear directly upon geography proper, then let us familiarize ourselves with correlated reference books. We may be able to arrange for a geography section or alcove in the library where, with the aid of our librarian, all reference books pertaining to the day's lesson may be grouped and where students will find helpful material.

All supplementary reading should be definite and clear cut so that no time is wasted and so that the greatest good may come from all the energy expended. See that the reference list includes the exact

title with chapter and page, such list to be prepared each day in advance by the instructor and hung in the geography alcove so that there is no protracted hunt for especial points in a large mass of references. This plan is necessarily preceded by a definite outline in class of the important points to be discussed on the morrow. One hour or one hour and a half of serious, concentrated reading in the preparation of the advance lesson each day is not too much to require of the average student and should produce excellent results. If time permits, particular topics on which students are to write special papers or are to account for orally, may be assigned or chosen during the quarter and possibly may take the place of a written class test. This exercise shows the result of study in outside sources of reference, and is especially helpful in giving training in the seeking and the organization of new facts, but the student should not be led to feel that he is doing original work—it should not be called research—it is merely exercise in adapting material.

But library books are not the only aids. There is an abundant live material in the current periodicals and newspapers. I should feel that my pupils were poorly fitted for their work if they did not know such authors as Geikie, Gilbert, Davis, Russell, Tare and others. Furthermore, I want them to be familiar with the leading geographical publications, such as, The Geographical Magazine, National Geographical Magazine, Journal of School Geography, Bulletin of American Bureau of Geography and Scottish Geographical Magazine. As an incentive to reading, I would suggest that each pupil during the quarter prepare a topical classified reference list of geographical articles which has noticed in the current magazines and report in the form of a short review upon at least one article which he has read during each week. This exercise leads to careful reading and affords practice in compiling and labeling geographic material which may be helpful in the future as reference.

Another means of creating an up-to-date interest in geographical events is the current geography bulletin board. Each pupil is asked to write on the board space assigned for the purpose, or on a sheet of manila paper hung in the geographic alcove, any important item he reads during the week, providing it has not already been written; this necessitates his reading the contents of the board before jotting down his item. On Friday afternoon the bulletin may be read and special points discussed for a few moments. This plan is especially well adapted to the grades.

Still another source of information is the newspaper-clippings to which the young people should be encouraged to contribute. To make them available, I would suggest pasting them on sheets of heavy pasteboard according to some plan and within easy reach of all.

Furthermore, many valuable articles may be cut out of abandoned or duplicate periodicals, such as McClure or Harpers, and these the pupils will gladly bind in manila paper covers at odd moments. Such references often furnish us with just the material needed on a particular subject not treated of in the ordinary reference text. In all our supplementary contrivances, we should so arrange material as to save time and energy in ransacking drawers and shelves.

The aforesaid are some of the ways by which interest in supplementary reading may be created, for when the interest is once awakened there is no fear about the results. Just how much supplementary

reading is justifiable and how varied the schemes for stimulating interest should depend altogether upon the length of the term, the average ability of the class and the pleasure of the instructor.

Similar plans with certain modifications may be introduced successfully in the common schools. There the difficulty of securing books simple enough for the child's grasp is one perplexing feature. Such books as Carpenter's Geographical Reader, Thwaites' Story of the Badger State, Knox's Boy Travelers do more in fixing facts and creating a desire to know more than all the geographies in the universe.

The greatest danger with children, however, is in presenting problems that are too inclusive; no child should be asked to look up debatable questions on an elusive topic that would require whole books for a proper presentation in print.

It would be well to take a glimpse at the geography requirements in the graded schools of Germany, for Germany can teach us lessons of long and successful experience in the study of geography, which is carefully graded in the elementary schools, continued in the high school, and emphasized in the University. Learning lessons from the book, committing geographic facts to memory, which is so characteristic of many American schools, is unknown in Germany, France and Switzerland. Instead, the pupils learn from direct observation and reading of books of travel, science and history. Commissioner Harris, in his report on the teaching of geography in schools of France, laid much stress on the readiness with which pupils in all grades responded to an assigned subject in class showing a knowledge of the subject due to supplemental reading.

The course in reading as in the Normal department should be arranged in accordance with the child's abilities and the choice of facts must be determined by his future needs in special lines.

Let us remember, then, that in Normal schools students are handicapped by lack of time, meager information, many demands in other departments, limited facilities for broadening knowledge, and that an understanding of geographic conditions in their relation to applied subjects is indispensable to a successful teacher.

Much information is to be obtained by well organized plans of reading, and daily supplemental reading stimulates and awakens interest, makes the student realize that the text-book is not the only means of imparting knowledge, and makes him more generous and open-minded in judging the disparities and contradictions which exist among different authorities.

Moreover, supplemental reading teaches him how to use books and above all familiarize him with their contents. In view of all these conditions on the part of the student there should come a development of more careful planning on the part of the teacher and the elimination of many features of work which tend to debase geography as a study and to curb the interest of the child. An acquaintance with the related fields of geography through a series of well selected references leading to an independent result, is perhaps the epitome of the suggestions advanced.

HISTORY, POLITICAL ECONOMY AND CIVICS.

Leader, A. J. HUTTON, Whitewater.

AIMS IN TEACHING ECONOMICS.

W. H. CHEEVER, Milwaukee.

1. To create an interest in the economic questions of the day.
2. To develop a desire to read intelligently economic literature as found in the daily press, magazines and books.
3. To broaden the student and give him topics for conversation as he meets his patrons socially.
4. To train the student's observation and judgment so that he will not judge from insufficient facts and will see both sides of a mooted question.
5. To correct wrong views as to the relations between capital and labor, the rich and the poor, etc.
6. To show the relation of economics to—
   a. Geography.
   b. History
   c. Arithmetic.
   d. Civics.
7. To show the dependence of the individual upon society.
8. To create in the student a catholic spirit, a sense of justice, and a feeling of his own responsibility.

USE OF THE FUNDAMENTAL PROPOSITIONS 1, 2, 3, AND 4 IN THE TEACHING OF HISTORY.

GRACE DARLING MADDEN, Milwaukee.

I. The application of the four fundamental propositions in the preparation from day to day of class work necessitates a lesson-plan—the parts of this lesson-plan arranged under four headings, viz.: 1—Aim or aims to be realized in the next recitation. 2—What must be known or done to realize these aims. 3—What of the things enumerated under proposition 2 the pupil now knows or ca ndo. 4—What of the things enumerated under proposition 2 the pupil still has to learn or do.

II. These lesson-plans necessitate the selection and organization of subject-matter.

There are difficulties attending the grouping of subject-matter of history. Why?

(a) Because of the multitude of events or data.

(b) Because of the chronological grouping of data as presented in many text-books rather than the "institutional method" of grouping, i. e., the author groups the data presented in the order of time in which they occurred. He follows the method which builds up associations in "chronological units" while the "institutional method" marks the progress of any one idea or institution.

In the first formal study of history through the medium of the text-book the teacher should, with his class, follow the text-book arrangement of the chronological method of organizing historic data, since the organization of an historical topic by the "institutional method" of grouping implies a knowledge of later phases of the subject, which phases occur perhaps a century or more later than earlier phases of the same subject, this later data being properly understood only in connection with a study of many other events which happened contemporaneously with them.

The class-plan, then, based upon the four fundamental propositions must follow the chronological method of classifying events, if the class is studying the historical data for the first time through the medium of a text-book.

After this is done and the proper time for a careful review arrives, this review should be conducted following the "idea" or "institutional method" of grouping.

This would necessitate the formation of a second series of class-plans in which the data formerly organized by means of "chronological units" are again outlined following the "institutional or idea method." The latter work is absolutely necessary for no one really knows history who has not been led to associate historic facts and reassociate them until he sees the development of an "institutional unit."

Teachers in history in Normal schools should train students to organize properly history topics for teaching purposes. The students in the Professional Review classes in history, then, should study the adaptation of the four fundamental propositions to the teaching of history, when historic data are presented following the chronological or text-book method of grouping, and again, when historic data are presented following the "institutional method" of grouping.

The students in the Professional Review classes in our Normal schools have studied history for several years and are supposed to have gained a chronological view of the leading historic data of their nation's history. Hence the teacher of the Professional Review class should organize in these class-plans (based upon the four fundamental propositions) subject-matter which is so grouped that it illustrates the "institutional method." Again the teacher should organize class-plans in which the subject-matter presented to be taught should illustrate the chronological method of grouping.

The former of these two series of class-plans is necessary in the Professional Review class for the following reasons:

1. It serves as a means of reviewing "academic" history.

2. It illustrates to the student the organization of data which go to make up a whole "institution" or idea.

3. It gives the student a certain faculty and power—in that final organization of data—at which the trained student of history arrives. No one can really teach history who cannot make this final and best organization of historic data, who cannot trace the relation of cause and effect, the gradual development of an idea or institution through years of time, what "has become" as well as "what was."

4. It presents to the pupil an illustration of the adaptation of the four fundamental propositions to the outlining of subject-matter of instruction, which subject-matter is presented through a series of class-plans, each plan outlining an onward step or steps in the development of an "institution." The other or latter of these series of class-plans

is necessary as the future teacher should follow the arrangement of data as presented in the text-book and should present historic events grouped in chronological units. As the former of these series is the more difficult, the teacher in the Professional Review class in history should illustrate this the more frequently. The following is a skeleton oultine of important historical data grouped according to the "institutional method." This outline embraces the subject-matter presented in Channing's Students' History of the United States from about the year 1790 to the outbreak of the Civil War.

A. Struggle between Nationality and Democracy—Doctrine of National Sovereignty vs. State Sovereignty.

I. Over Domestic Questions. a. Assumption Bill. b. Funding Bill. c. Excise Tax on Whiskey. d. United States Bank.

II. Over Foreign Questions or Relations.

1. With France. a. Question of Aiding France. b. Citizen Genet. c. Alien and Sedition Laws. d. Virginia and Kentucky Resolutions.

2. With England. a. Impressment of Our Seamen. b. British Orders in Council. c. Our Embargo Act. d. Our Non-Intercourse Act. e. Opposition to Declaration of War with England. f. Hartford Convention.

B. Approach of Nationality and Democracy.

1. Louisiana Purchase. 2. What Political Parties Seemed for the Time to Advocate Each Other's Views as Sectional Interests Seemed to be Threatened. 3. Era of Good Feeling. 4. Desire for National Expansion, i. e., Opening of the West, Internal Improvements. 5. Pride in National Life Between 1835–1840.

D. Nationality and Tariff.

1. How Free and Slave Labor Made Industries Sectional in Character and Extent. 2. Forces Which Developed Manufactures in Free States. 3. Opposition of Slavery Section to Protection of These Industries. 4. Nullification of South Carolina. 5. Compromise Upon the Issue.

C. Nationality and Slavery.

1. Slavery Conflict in 1820. a. Origin of the Conflict. b. The Missouri Struggle and Compromise of 1820. c. Threats of Secession.

E. Growth of Sectionalization, or of Sectional Interests, Feeling and Legislation with Respect to Extension of Slavery.

1. Movement for Texas by Southerners. 2. Real Motive of Mexican War. 3. Acquisition of Mexican Cession. 4. Gold in California. 5. How 3 and 4 aided in Sectionalization. 6. Compromise of 1850 as a Result of 3 and 4. 7. Kansas–Nebraska Bill and Civil War in Kansas.

F. Continued Growth of Sectionalization with Respect to the Slavery Issue.

1. Abolition Movement. 2. Uncle Tom's Cabin. 3. Dred Scott Decision. 4. Lincoln–Douglas Debates. 5. Charleston Convention. 6. Secession. 7. The Slave Holding Section's Appeal to Arms. 8. Feeling of Nationality in the North. 9. Beginning of the Civil War. 10. Contrast of North and South in 1860 with Respect to Differences in Their Social and Industrial Life.

III. Illustration of a lesson-plan based upon the four fundamental propositions. This lesson-plan develops the unit marked above as c, or "Nationality and Slavery."

1. Aims.

(a) To lead the pupil to see that the question of slavery is a sectional question and is a question or problem which arises again and again.

(c) How the Missouri struggle affected sectional ill-feeling and renewed the question of the sovereignty of the central government.

2. What must be known or done in order to realize these aims.

a. The student must review the history of former disputed questions which arose concerning slavery, from the time of framing the Constitution unil 1820.

(b) The student must group and state former illustrations relative to questioning the constitutionality of acts of central government.

(c) The student must know the relative number of free and slave states just previous to 1820, and be able to color the slave and free area upon an outline map.

(d) The student must know why each section, slave or free, was anxious to retain an equal or greater balance of power through the number of their representatives and senators.

(e) The student must know of Missouri's desire to be admitted to the union, and of the various bills and resolutions proposed relative to her admission and to the question of slavery within her boundaries and within the Louisiana Purchase from which Missouri is carved.

(f) The student must know that the question arose of Congress' constitutional right to forbid slavery in territories.

(g) The student must know of the attempt to admit Maine and of the relation of its admission to that of Missouri.

(h) The student must know the final provisions embodied in the Missouri Compromise.

(i) The student must know the terms of the "obnoxious clause" in Missouri's constitution, of the dispute concerning this clause and how the dispute was settled.

(j) The student must know the effect of above bill and its discussion upon sectional ill-feeling and how it illustrated sectional feeling and interests.

(k) The student must study his text-book, and if possible, do collateral reading.

(l) The student must give a summary of each of the above topics a, b, c, etc.

(m) The student must be able to give a brief, clean-cut summary of the whole unit.

3. What is known.

(a) Perhaps something of c, d, e, f, g, h, i, j.

All under 2 not found to be known under 3, i. e., probably c, d, e, f, g, h, i, j, k, l, m.

Note—The extent of what is known is determined by what the teacher has already taught a and b were taught under preceding lesson-plans before the Missouri Compromise is reached. The extent of what is known is also determined by questions asked by the teacher upon the topics c, d, e, etc. The amount of this knowledge already known depends upon former experiences of individual pupils. the reading they have done, work in history in other grades, conversations heard in the home, etc.

IV. This preceding lesson-plan is a small unit in the series indicated under topic "Struggle Between Nationality and Democracy," "The Doctrine of National Sovereignty vs. State Sovereignty." It is small

since it indicates but one onward step in the struggle concerning the powers of the central government and in the strife between sectional interests. Other historical units are so large and represent so many steps in the development of an institution or idea that the teacher must use judgment with respect to the subdivision of this larger unit into a series of smaller ones to be presented in logical order corresponding to a series of lesson-plans, for example, a series of lesson-plans, and not one lesson-plan should be made, if the unit "Nationality and Tariff" be presented to a class. These lesson-plans should realize one or more, at a time, of the series of aims stated below.

Aim (1) To lead the class to contrast the slave and free sections with respect to their industries in about the year 1790.

Aim (2) To lead the class to review and summarize the forces which made the industries of the slave and free sections sectional in character.

Aim (3) To teach the influence of the invention of the cotton-gin upon cotton growing in the South and upon the rise of cotton manufactories in the North.

Aim (4) To teach the influence upon our commerce of attacks on our neutral trade by France and England.

Aim (5) To teach the influence of our retaliatory measures (our Embargo and Non-intercoursce Acts) upon the rise of manufactures in New England, upon our ship-owning and commercial interests.

Aim (6) To teach the further influence of the war of 1812 upon our industrial interests.

Aim (7) To trace the growing desire to protect our new manufacturing interests.

Aim (8) To trace the growth of sectional feeling for and against a protective tariff due to the preceding development of sectional industries.

Aim (10) To teach and compare the views and debates of Hayne, Webster and Calhoun concerning national sovereignty and state sovereignty, these debates being precipitated by the Foote Resolution and the tariff issue.

Aim (11) To teach the nullification of the tariff act of 1832 by South Carolina, coercion of South Carolina by President Jackson.

Aim (12) To teach how the tariff issue was compromised and settled for the time being.

Aim (13) To review and summarize all relative to the unit "Nationality and Tariff."

Aim (14) To review and summarize preceding compromises made between opposing parties and sections upon vital issues.

Aim (15) To review and summarize all preceding attempts to question and criticise acts of the central government.

This paper is so long that the writer will not attempt to give illustrations of class-plans based upon the four fundamental propositions in which the subject-matter to be taught is grouped following the chronological order or the arrangement of matter as presented by the text-book, but will refer teachers for fine illustrations of lesson-plans so organized to the suggestive lesson-plans in history outlined by C. E. Patzer for use in the Teachers' Institutes in Wisconsin in 1899.

V. Above selection and grouping of material and organization of the same in lesson-plans involves what phases or lines of work on the part of the teacher?

1. The teacher must know the subject of American history as a

whole and see the natural and logical division into eras or epochs.

2. The teacher must see the relation between these epochs in order that the student may not gain the impression that the history of any country develops "in sections."

3. The teacher must determine the natural units of each epoch.

4. The teacher must see the relation between these units if any exists.

5. The teacher must then determine the naming of the "unit-heads."

6. The teacher must determine their relative importance.

7. The teacher must determine their order.

8. The teacher must organize the lesson-plans corresponding to a unit or a division of a unit, if the unit is so large as to require a series of lesson-plans showing progressive steps in the development of an institution.

9. The teacher must refer the student to the paragraphs in the text-book referring to the different topics under proposition 4 of the lesson-plan.

10. The teacher must determine what topics under 4 of the lesson-plan need further elucidation than that afforded by the text and must prepare are the notes and questions and select historical and illustrative reading for the pupil.

11. The teacher must arrange these "questions for thought" and reference readings in an order corresponding to sub-topics under proposition 4 of the lesson-plan.

12. The teacher must be ready to assign to individual pupils references to read, indicate the purpose of each reference, and to what in the reference the student should pay attention.

13. The teacher must determine what of the sub-topics indicated under proposition 2 of the lesson-plan the pupil now knows or can do.

14. The teacher must think out how he may rapidly and effectively bring to the consciousness of the pupil the known data already possessed by the student, which may be brought into such living and vital relation with the new as to aid the pupil to comprehend the new or unknown.

15. The teacher must think out a clean-cut summary of each sub-topic under proposition 4, and also a clean-cut summary of 4 as a whole unit.

VI. The handling of the class-plan (based upon the four fundamental propositions in the class-room).

1. The teacher's preparation of her class for the next day's work.

(a) Announcement of the aim or purpose of the next day's lesson.

(b) Presentation to the class of that part of the plan corresponding to proposition 4.

(c) Questions by the teacher which reach back and gather up the data presented in former lessons which will serve as a transition to and preparation for the new lesson.

(d) Further questioning determining what is known by the pupil under 2.

(e) Remarks and notes by the teacher explanatory of topics indicated under 4 if such need explanation.

(f) The teacher indicates the exact paragraph in the text-book, presents a series of questions for critical thought, assigns reference reading, indicates the purpose of this reading and what to look for in these references, all of this designed for the purpose of further eluci-

dation of the subject than that given by the text, if further data is needed.

(2) The next day's recitation conducted with the purpose of the pupil's gaining a truer view and a deeper insight.

(a) Placing together before the eyes of the class the teacher's written headings under 4 as a guide to the impression upon the mind of all that is to be held.

(b) Recitation by the pupil of first sub-topic under 4.

(c) Dialogue between teacher and pupils correcting erroneous statements, clearing up vague ideas, adding data omitted by pupil.

(d) Answering of critical questions prepared by teacher or pupils relating to first sub-topic under 4.

(e) Dialogue to group the various portions of subject-matter now belonging to this in light of latter work.

(f) A fuller and better recitation upon this first sub-topic in light of latter work indicated.

(g) Proceed with each succeeding topic under 4 as with 8.

(h) Concentration questions now by the teacher or suggestion by pupils indicating the important data in logical order of 4 as a whole.

NOTE.—Only so many sub-topics, a, b, c, etc., should be handled each day as time allotted to class recitation will allow.

3. Practice, Drill and Application.

Connected recitation of all the individual topics under 4. Repetition of condensed headings in connection. Recitations of smaller sections in full and connected form again, if this seems necessary, all this to show an understanding of the whole. Application of, and comparison, if possible, of principle of conduct, of motives, of traits of character, of the question of political problem involved, etc., to similar affairs of local and national life today. Illustration of this last.

VII. Class work based on the "four fundamental propositions" is truly pedagogical.

(1) The first important function and duty of the teacher is to prepare the student's mind for the assimilation of new knowledge and to present the subject-matter of instruction in the order and manner which best conduces to this assimilation. The class-plan based upon the four fundamental propositions does this. Why?

(a) It presents the subject-matter of instruction in logical order.

(b) Points out definitely what is to be done.

(c) Indicates the order in which this is to be done.

(d) Brings to the consciousness of the pupil preceding known data and experiences similar to or relating to today's subject-matter of instruction.

(e) These known data reach out and bring into vital relation with themselves the new elements of knowledge to be learned.

(f) The statement of the aim puts the pupil into the proper frame of mind for work in so far as it may excite expectation, stimulates interest and inquiry, arouses self-activity in working at a task. The analysis of known data should be developed in the same order as presented in preceding lessons, then the mind is in the condition in which it has reached its greatest capacity of taking on new knowledge; i. e., avoid mixing up this preliminary recalling of former data with new data for assimilation.

(2) Class-plan based upon the four fundamental propositions makes the subject-matter of instruction clear.

(a) It presents matter not in the mass, but in small logically connected sections, to each of which, in succession, the pupil gives his undivided attention, thus ensuring clearness of each step.

(b) Then after attention has been given to each successive step of the lesson-whole, these steps or units are brought into close relation with each other. The student thus gains clear individual notions and avoids the apprehension of a confused mass of disconnected details. This close connection of individual steps of the lesson-plan is brought about by means of requiring the student to make a clear, well-out summary of the whole. The number of the individual units or steps of the whole lesson-plan must be determined, of course, by the age and mental strength of the pupil.

(3) The class-plan based upon the four fundamental propositions is capable of presenting the subject-matter of instruction in a connected series.

(a) The average text-book of history presents a mass of unrelated data. The class-plan, rightly organized, presents finally as a means of review a related series as has been indicated. A naturally related series helps form intimate and lasting associations. Each lesson-plan of a related series corresponds to an onward step, to an extension of the subject-matter. The class-plan does not preclude devices to fix the series in mind.

(b) The class-plan breaks up the accidental historical associations based upon the time or space relation, which relation prevents thought and true insight. There is need of a wide and persistent application of general truths. If knowledge is to have a rich content, the general truth must be again and again reinforced by application to new particulars. The application of a general truth to particulars co-ordinates, groups knowledge. The lesson-plan in history permits of so grouping that the lessons they teach appear in the consciousness of the learner.

(4) The lesson-plan based upon the four fundamental propositions requires the taking of thought about the best subdivision of the matter to be taught. The pupil in time sees the "method-whole" an order in grouping, an evolution of an institution; what "has become" as well as what happened.

(5) The lesson-plan based upon the four fundamental propositions admits of the use of the dialogue, the monologue in the class, of analysis or of synthesis with regard to the subject-matter learned.

(6) The lesson-plan requires the teacher to see that what knowledge the child has on hand is put to use.

VIII. The writer asked students of a certain Professional Review Class in history to formulate and state the results as they had conceived them, of the adaptation of the four fundamental propositions to the teaching of history. The class had studied a series of class-plans developing an "institutional unit" presented by the teacher, had formulated for class revision and criticism a series of class-plans developing a "chronological unit" of history, had discussed the class-plan under the following heads: (a) Preparation, (b) presentation, (c) drill and application.

The results they formulated are the following:

1. The class-plan is a basis for real topical work.
2. The class-plan prevents the pupil's memorizing of facts "by page."
3. The student must select the central, essential points of each lesson.
5. Sudents learn to separate the essential data from the non-essential.

4. The summaries made by the students admit of excellent training in language power.

6. Students learn the relations existing between the parts of a "whole" learn wholes in a series, thus acquiring an historic vista and breadth of view.

7. The teacher consciously selects the known as a basis to which to relate the unknown, if the known exists.

8. The student's time is saved. Why? He knows what to do, the order in which to do it.

(a) Result 8 is true again, since the student's mind is aided for the rapid and effective assimilation of new data. The teacher consciously brings to the mind of the pupil preceding known data and experiences similar to or relating to today's subject-matter of instruction.

9. The text-book is not neglected, but its proper and thorough use is indicated, i. e., the chronological order of the text-book is followed and yet there is also a constant attempt to group and co-ordinate related events, not only in lesson-plans which group related data of an "institution," but also with each day's advance lesson the teacher looks back, gathers up and requires the student to review other similar data: (See a and b, under proposition 2 of class-plan on Missouri Compromise and see aims 1, 13, 14, 15, in the series of aims relating to unit "Nationality and Tariff.")

10. The student is led to make summaries of several days' or weeks' work.

11. The student carries away essentials in definite form.

12. The class-plan necessitates the accomplishment, each day, of something definite, a step in advance.

13. The class-plan compels close attention to the aims or purposes and the determination of what to do to realize these aims.

14. That part of the class-plan corresponding to proposition 2 discloses to teacher the possible short-comings of the text-book in regard to the subject-matter: for example, the text-book, at times, does not present a sufficient number of details for the child to picture the historic scene or event; for instance, the first home and first clearings of land in the new west. Again the text-book does not present a sufficient number of details for the average child to understand the purpose and organization of some institution; for instance, the United States bank.

15. The class-plan necessitates the organization of subject-matter.

16. The class-plan calls for such careful preparation on the part of the teacher that he is made free, i. e., ready to meet such emergencies as arise.

17. The class plan has an ethical value in so far as the child cannot plead that he did not understand the assignment of the next day's lesson. He is required to perform a definite duty in a definite manner.

DISCUSSION.

G. C. SHUTTS, Whitewater.

Mrs. Madden in her paper advocated the organizing of the subject-matter under special topics, as opposed to the chronological plan.

By questioning she admitted that for grade work and for a Normal

or high school class taking the subject for the first time, that to follow a text, relating the events to a central theme is advisable. These events cotemporary in time are all more or less causes or effects in institutional growth; and this should be made apparent to the pupil.

The great cause of shortcomings in the teaching of history is lack of appreciation of its meaning. Lacking here, it is impossible to select and organize the material for study. Too many times the assignment consists in calling for so many pages of the text. The pupil here, ignorant of the central thought that should guide him in relating the material he is studying, does the best he can and commits to memory the statements of events found in the text. The recitation puts a premium on that kind of study by simply calling for a rehearsal of what was learned, neither relating nor making use of what was presented by the pupil. Events, simply, are magnified,—treated as if they were the real content of history. No relations are established and their meaning is not considered.

Now, unless we have attained to the thought that history is the story of the growth of an institution, an evolution, and in studying history we are trying to find out how, what now is, or was at any given stage, grew, and what were the steps in its growth, and how they are related to the present product; how certain steps were produced by preceding ones, and how these combined with new conditions modified succeeding ones, we cannot put the real aim before the pupils.

To teach history successfully, then, back of the lesson-plan must exist a true conception of the meaning of history. But the nature of the plan is such that it necessitates inquiry along the essential lines; and will help any teacher to do his work more perfectly. The mere fact of seeking for an aim, if for no other reason than because the lesson-plan calls for it, if faithfully pursued, will put one along the right path of inquiry, and may lead one out into the true field of history. The search for that which must be known or done to accomplish the aim is more than likely to cause an earnest teacher who really desires to know the truth, to discover an organizing principle, and a logical arrangement of the material to support that principle. In short, the lesson-plan is a valuable instrument to put the teacher in touch with his subject. It will not teach him history but it will open the door for him and if he has the spirit and energy to enter, it may lead him into a large place in history thought.

On the other hand it puts the teacher in the right attitude toward his class. Too much work is prepared purely from the basis of the subject-matter. One with a cyclopedic knowledge of history may, in his preparation for his class, so far ignore his pupils that the result will be a failure. The lesson-plan brings one to a consideration of his pupils. It is not history that the teacher should study wholly, but history in relation and adaptation to the class. What must the pupil know? That depends on what he can learn. This brings one to the study of the pupil, an important consideration. What of that which he should know, does he now know or has he learned? This leads one again to a comparison of his subject-matter in relation to the pupil.

In short, the fundamental propositions are pedagogical when looked at from the history side, the pupil side, or the teacher side. This trinity, the teacher, the pupil, the subject-matter, must be kept in equilibrium. To adapt, for illustration, Dr. McGregor's triangle: if any one of the three elements be smaller than the true relation de-

mands, the area of the trinagle, i. e., the pedagogical product, is lessened.

The study of the four propositions in preparing work in history for a class, tends to keep these three elements in equilibrium. The propositions cannot work miracles but they put teacher and pupils at the best point of vantage possible.

PURPOSES AND SCOPE OF WORK IN CIVIL GOVERNMENT IN THE NORMAL SCHOOL.

ALBERT H. SANFORD, Stevens Point.

I. Purposes.

1. To help Normal students toward good citizenship by:

a. Giving information. This information should not be restricted to the Constitution of U. S. and to the Constitution of Wisconsin, and should not necessarily include everything in those documents; it should rather aim to cover the field of government as it is actually carried on today. There should be only so much history of government as is necessary to understand this.

b. Cultivating judicial-mindedness.

c. Teaching right principles and high ideals of government.

d. Awakening an interest in public affairs that should look forward to future participation in them.

2. To encourage the good teaching of civil government by Normal students, through the transmission of a, b, c and d (above) to their pupils and by directing attention to methods and materials.

II. Scope. The field of actual government, local, state and national. If time does not allow covering the entire field, it is better to work out thoroughly some topics and completely ignore others, than to treat superficially all the topics included in this outline.

A. Local government.

1. An outline of town, village, city and county governments, by the comparative method. Officers and their functions are the principal topics here. This and the next topic should be studied with constant reference to the locality.

2. Certain operations of local government. The following topics should be illustrated by use of legal blanks, county board reports, sample ballots, etc. Attention should be given to evils, abuses and remedies of actual government; e. g., undervaluation, bribery, machine rule, etc. Practice in use of statutes and session laws gives valuable training.

Taxation—assessment, equalization, apportionment, etc.

Elections—registration, ballot systems, canvass, suffrage, political parties.

Trials—arrest, complaint, subpoena, preliminary examination, venire, juries, writ of error, etc.

Highways and Bridges.

Support of Poor and Insane.

3. History, briefly, of local government. (1) Colonial. (2) The spread westward.

4. City government in general. Reading from references on franchises, reform movements, water supply, sanitation, condition of the poor, police systems, etc.

B. State government—following, in general, text of the State Constitution. Make time for discussion of current happenings (term of court, meeting of legislature, Congress, etc.), and actual practices (lobby, pass system, etc.), by treating slightly or omitting Arts. II., IX., XI., XIII., XIV. Also Art. IV, sections 12, 13, 15, and Art. V., Sec. 7.

1. Fundamental principles in Bill of Rights.
2. The Legislature and its workings.
3. Executive.
4. Administrative. Use of Blue Book and State Reports to show functions of administrative officers, boards and commissions.
5. Judiciary. List of courts and organization of each. Slight attention to jurisdiction.
6. Finance. Sources of state revenues; origin and use of funds.
7. Education. Omitted if taught in School Law class.

C. National government. Here, library reading (particularly in Bryce) upon selected topics. Also attention to newspapers and periodicals.

1. Formation of the Union, especially Constitutional Convention.
2. Framework of National government; Legislative, Executive, Judicial; following the text of the Constitution.
3. Workings of National government. Topics 2, 3, 4 are not successive, but interwoven, topics under 3 and 4 fitting into proper places in the study of topic 2. Some important topics are: Procedure in Congress, Committee system, English Cabinet system in Comparison, Power of Speaker, Money of U. S., Forms of Taxation, Postal system, Inter-state Commerce, Census, Control of Trusts, International Arbitration, Acquisition and Government of Territories, Civil Service Reform.
4. History of National government under the Constitution: the Amendments in their historical setting, Controversies over loose and strict construction, Tariff, Internal Improvements, Nullification, Secession, Reconstruction.
5. Current Political Events. Make time (a few minutes almost every day) for this by omitting or slighting non-essentials, e. g.: Impeachments, Privileges and Disabilities of members of Congress, Details of Art. I., Secs. 9 and 10, Jurisdiction of U. S. Courts and Treason.

SUPPLEMENTING PREVIOUS PAPER.

J. F. SIMS, River Falls.

A. Local Government.

1. Personal attendance at council meetings, town and school meetings, and caucuses is required, and reports upon what was done there are presented to the class. Students are also required to visit the place of holding elections, court-rooms when court is in session and report observations.
2. The sources of authority for the action of the various law-making organizations such as Town, School and Council Meetings, and County Board are discussed.
3. In discussing functions of officials in local government, constant

appeal is made to the students as to what kind of a man, or what kind of men, should be chosen to exercise these functions. They are asked what they would do in a community to secure the election of the right kind of men to office, or initiate movements toward the better government of the community.

B. State Government.

1. A definite effort is made to show that the people of the state through the legislature are the sovereign body, and that this legislature confers authority for action on lower organizations, which authority it can change at any time by repealing or amending laws or making new ones.

2. Legislative Powers are unlimited save by:—

(a) Powers granted to the U. S. Government in the U. S. Constitution.

(b) Powers denied to the States in the U. S. Constitution.

(c) Powers prohibited to the State in the State Constitution.

C: U. S. Government.

1. Congress can enact no laws save:—

(a) That power for that action is granted in U. S. Constitution.

(b) That power for that action is implied in U. S. Constitution

(c) That power for that action is necessary to carry into execution the powers expressed or implied in the U. S. Constitution.

2. These powers were granted by the States. By amending the Constitution of the U. S. through the initiative and final action of States, the States may still have a strong hold in the control of the central government, though such power is exercised under greater difficulty, necessarily, than the individual state has in conferring or curtailing powers of home organizations such as City, Town, County.

3. Certain sections of the constitution, state as well as national, are memorized, especially those dealing with the powers of the different departments of the government.

4. More stress is placed on the study of functions of the different governmental organizations than upon framework, the framework being considered incidentally.

5. Constant comparisons are made of one constitution with the other, and the bearing of constitutional provisions upon current political questions, and upon facts in U. S. History, is emphasized.

6. The students are led to appreciate the fact that they live under two governments, State and National, each having its own definite sphere of action.

SHOULD TEACHERS OF HISTORY IN NORMAL SCHOOLS TRAIN STUDENTS TO ORGANIZE PROPERLY A HISTORY TOPIC FOR TEACHING PURPOSES? IF SO, HOW MAY IT BEST BE DONE?

E. W. WALKER, West Superior.

To the first question there can be but one answer. The very existence of Normal schools depends upon their power to train students to organize for teaching purposes topics in any common school subject. Topics in history are not barred from this list.

Yet we have been long in reaching a full appreciation of the fact that it is only organized knowledge that gives teaching power; that it is

only in organizing the knowledge one has that a field is offered for increasing his teaching power. Possibly drilling power may be exercised without organization, but teaching power, never.

The teacher possessing only a fair amount of historic knowledge but with a well defined power of organizing the knowledge he has, will do vastly more effective history teaching than one with great knowledge but little power of organization. Indeed, it is quite possible for one to know so much more history than his power of organization enables him handle, that his teaching would actually be improved did he know less. His low power of organization could then use the little knowledge he has and make that little effective. The artillerist could give pointers to the teacher in this. He knows that each gun has a certain power to resist strain and that a charge of ammunition whose explosive force falls within that limit has a high propulsive power. If too heavy a charge is used, the penetrating power is actually less, to say nothing of a tendency to injure the gun. The gun has more ammunition than it can organize for effective use in one direction.

History is peculiarly liable to take on this condition. Its facts are in themselves so fascinating that the tendency to glean more and more of them is strong. This gleaning process is not history study. The mind must work over these interesting facts of history, associate them, re-associate them, and even reject many before history *study* can be said to have taken place. And the power of rejection is not easily acquired. To know a great many interesting facts about a given incident or person and to refuse to use them because they contribute little to the development of a worthy idea requires a real effort of will that may be called courage. To see wherein they do contribute to this development requires a strong historic sense. To lead others to see this requires skill, power of organization, and teaching power. Between these two conditions it is quite possible for a teacher to have a body of facts greater than his power of organization can use effectively. In that case either his body of facts should be lessened or his power of organization should be increased. Manifestly the latter alternative is the better, and to this end should he be trained to organize the knowledge he has.

Clearly then teachers in history in Normal schools should train students to organize properly a history topic for teaching purposes.

How may it best be done? This question is not so readily disposed of. Before I consider this let me express an opinion as to when it can best be done. It should not be attempted by the academic classes. One cannot organize a topic nor make a lesson-plan in a subject he is studying in progress. Organization implies a knowledge of later phases of the subject. It should be undertaken only with the professional review classes. We cannot determine how this training in topic organization can best be done without a clear comprehension of what are the purposes, scope, and plan of the history work in the grades and high schools. Let us turn briefly to this problem.

History is essentially a study of associations and comparisons. Each fact in history to be worthy of a place in history at all, must be in some way associated with other facts either as cause, or as result, or as cotemporary. Not until the teacher recognizes these associations and uses them in planning his work can he be said to have a method in his history teaching. "How came this to be?" "What came of it?" "What more occurred at this time?" are pertinent questions respecting every

historic fact. When the teacher finds himself asking himself and his class these questions, he has a method in his work though he know it not.

Which of the two methods now in common use he has depends on which particular questions he asks most often. If his question is "What other things occurred at this time?" he follows the method which builds up associations by chronological units, i. e., which marks off the history of the United States into periods by dates and seeks to associate closely the events of any one period and to lodge them safely and permanently in the memory of the child. This method says the time from 1765 to 1783 is the period of revolution and associates indiscriminately the Stamp Act, the First Colonial Congress, the Importation Act, the Boston Massacre, the Boston Port Bill, the Continental Congress, the military operations, the Articles of Confederation, and the French Treaty of Alliance, because they occur in this period of time. We may call this the chronological method.

If the teacher habitually asks himself or his class, "How came this to be?" and "What came of it?" he follows the method which builds up associations by institutional units, i. e., which recognizes in the history of the United States the growth of different ideas and seeks to associate closely the events which mark the progress of any one idea, and to thus suggest to the pupil's mind in addition to his knowledge of facts, the notion that ideas grow. This method says the growth of the idea of union among the English colonies stands as a worthy idea unit and associates the New England Federation of 1643, Franklin's Albany Plan, the First Colonial Congress, the Continental Congress, the Articles of Confederation, the Annapolis Convention, the Constitutional Convention, secession and reconstruction as events which mark the progress of this idea though they are widely separated in time. We may call this the idea or institutional method.

These two methods wholly different in purpose and plan of attack are both sound. Each has its place.

The idea method of presentation is more inspiring because subtly and surely it will dawn upon the class that ideas grow, that the world moves. It makes them optimistic.

I do not believe an intensive study of any one period, with a view to seeing the characteristic life and civilization of that time, to be so profitable as we seem to think. It some way suggests condition, not action; it makes statics not dynamics the important thought. In a progressive state this is a contradiction. History is not a statement of dead events; it is ever a record of movement; it is always forceful, dynamical. There is no point in knowing of the condition of life in the early days of Virginia, the hardships, the privation, the threat from famine and from savages, except to know that one man, John Smith, moved through these conditions shrewdly, tactfully, and forcefully and mastered them. I do not care so much to have my child know the condition of Lincoln's early life as to know what he did in that condition. That is the great thing. We are prone to point the child to these hard conditions from which greatness has sprung, either in national or in individual life as though the greatness came because of these conditions instead of in spite of them. Lincoln would have used other conditions just as he did those of his boyhood. Otherwise he would not be Lincoln. What the child should see is that Lincoln did certain things. No matter what the condition under which he did them! Am-

bition, action, movement—these are the key ideas for the child to get whether it be the movement of an idea, an individual, or of a nation. So I see in the idea method of history teaching much more of value than I do in the time method.

In most courses of study one year is given to a formal study of United States history, usually in the seventh or eighth grade. This is ordinarily prefaced by a somewhat haphazard reading of biography beginning as low as the third grade.

This biography work should be arranged with reference to the institutional method. Men standing for the same idea, though not contemporaries, should be studied consecutively. This will give occasion for the formation of groups, thus:—

1. Columbus, Miles Standish, John Smith, La Salle, De Soto, Wm. Penn, Daniel Boone, Fremont. This is the poineer group. Shrewdness, tact, and daring are the attributes of each. Each met new and unusual conditions with a strong power of the initiative, the wit to do what he had never done before nor heard of others doing. This gives a virility to this group quite remarkable.

2. Paul Jones, Oliver Perry, David Farragut, George Dewey. A study of these four men will necessarily give the pupil a view of the development of the United States Navy. Nothing could do it better. What a tale of progress is wrapped up in this succession of pictures—Flamborough Head, Put-in-Bay on Lake Erie, Mobile, Manila!

3. Eli Whitney, Robert Fulton, Elias Howe, Samuel Morse, John Ericson, Cyrus Field, Thomas Edison. Power of initiative again. Pioneers again, but in another field.

Many groups can be formed. Washington, Grant, Lee, Sherman for warriors. Longfellow, Whittier, Bryant, Holmes for poets. These will suffice to illustrate my thought. In the successive study of men actuated by the same dominant idea, the worth of an idea, and of that idea, dawns on the child. This pre-supposes of course that its great worth has first dawned upon the teacher, for through no method can we impress upon the child what is not strongly in our own consciousness.

In the study of formal history in the grades, let the first study be by the usual text-book arrangement, i. e., the chronological method. Let this work be done accurately, definitely, thoroughly, breaking away from the text-book very slightly, if at all, then only for greater clearness, not to enhance the interest. Let the interest reside in the fact of mastery of work assigned rather than in much reading. It is not difficult to arouse interest simply in achievement. Lastly, when this is done and the time for review arrives conduct the review by the idea method. This will be the most valuable part of the work. Be brave enough to minimize less important periods that more time may be given upon the thoroughness with which the chronological work is done. It is the fruitage of best history teaching.

The school wherein exists a fair adherence to the plan herein set forth or at least to some plan which is based on the principles set forth in the early part of this paper, I believe, does much more than to teach history to the pupils. It does that. But better, it so teaches it as to make its material contribute to still greater ends.

From the above it is clear that three classes of history topics exist, one for biography work in the lower grades, one for the chronological work in upper grades, and one for the idea work in upper grades.

It is not feasible in the time allowed to the professional reviews to

do very much with all three phases. This is all I have ever been able to do:

First. Relative to the biographical work: Have each student in the class make out lists of men standing for the same dominant idea and whose careers adapt themselves readily to lower grade teaching.

Second. Relative to the chronological method: Each student is assigned one period, as Jefferson's administration. He makes a list of the events occurring in this time of which some assumed class, as eighth grade, should know. He then makes out a brief bibliography for his own use and that of the class.

Third. Relative to the idea method: Each student is assigned one topic, as "Coinage legislation in the United States." He makes a list of all the coinage acts passed by Congress, associating with each the main feature thereof with the conditions which led to its passage and the result of the operation of the act.

It will be noticed that nothing is said as to method of presentation of these topics. This can safely be left to other classes, as academic history, practice-teaching, methods, observation, pedagogy. This work concerns only the "what" of history teaching.

DISCUSSION.

J. A. WILGUS, Platteville.

I will first name a few points wherein I differ from Prof. Walker, whose paper you have just heard.

1. Almost at the very outset of his paper Prof. Walker sets forth this condition, viz.: A person is doing poor history teaching because he "knows so much more history than his power of organization enables him to handle." The remedy he sugegsts for the condition is to circumscribe the knowledge, so as to make it conform to the "low power of organization." I take issue squarely here for two reasons: (a) There can be no real knowing of history where there is a "low power of organization." To know history is to know relationships, and to know relationships is the very essence of organization. The trouble is not that too much history is known; it is that too little is known. (b) If, however, it were true that so much more history was known than it was possible to organize, the remedy would not be a good one, according to my view, for its application would take the wrong direction. Instead of advising a decrease of knowledge in order to improve teaching power, there ought to be an increase in the capacity to organize. This is the law of true growth and improvement, as I regard it.

I wish to be perfectly fair with Prof. Walker, however, and when he says, later on, that "it is quite possible for a teacher to have a body of facts greater than his power of organization can use effectively," and that it is "better" to increase "power of organization" than to "lessen the body of facts," I can wholly agree with him. The point that I wish to make and to impress deeply, is that knowing history is a thing diametrically opposed to knowing a body of facts that are unorganized.

I am inclined to believe also that this is Prof. Walker's real view of the matter, for he says, still further on that "History is essentially a study of associations and comparisons." If this is the case, I am sorry

that he has allowed himself to be so inconsistent in his statements in various places.

2. Another point of difference exists,—this time in connection with the second part of the question, where he says that organization "should not be attempted by the academic classes. One cannot organize a topic nor make a lesson-plan in a subject he is studying in progress." Without stopping now to discuss this, I will try to show later on and at length how organization may thus be effected.

3. Another point of difference also is found in his position regarding the value of intensive study. This I will take up and consider presently.

Except for these main points of difference and some minor ones which I omit, I think that, so far as I may be able to judge from my study of the paper, Prof. Walker and I find ourselves in substantial agreement, and I wish to express my personal appreciation of the many good things he has set forth in his paper.

His treatment of the subject, however, is not after the pattern that I would have followed, but that of course is natural. While I have not had the opportunity to give as much thought to the subject as I would like, yet I have tried to go about it systematically, and will therefore present the matter as it appears to me, and in the following aspects:

I. Interpretation of the topic;

II. Questions involved according to this interpretation;

III. Discussion of questions involved.

I. *Interpretation of the Topic.* Although at least six different meanings may be gotten out of the topic as stated, yet I believe that the broadest view possible will result most beneficially. Consequently my interpretation of the topic may be stated as follows: Should teachers of history in the Normal schools show students the necessity and value of organization in history work and make them skillful in organizing historical materials? If so how can these things be done best?

Interpreted in this sense, and I believe this is also Prof. Walker's interpretation, the first part of the question admits of only one answer; for I doubt if any one will deny the desirability of, nay, even the necessity for, both thorough organization, and also skill in organizing.

II. *Questions Involved.* According to this interpretation, discussion would most profitably center around the following questions: (1) What is meant by organization, (2) What principles must be followed in making a good and thorough organization, and (3) How may the pupil best be made to apply those principles now as a student and later as a teacher?

III. *Discussion of Questions Involved.* (1) What is meant by organization? Rather than quote a definition from the dictionary, two illustrations will serve to indicate the meaning. I may carry in my pocket a metal case containing all the wheels, pinions, springs, jewels, hands, and other component parts of a complete watch, packed side by side, associated, but lacking arrangement, each piece in its proper relation with other pieces, that is not being organized, I certainly would not be possessed of a watch. Thus it is with historical materials and data. These are all constituent or interdependent parts of some organic whole, and unless they are arranged according to their constituent and interdependent relations there is no organization, it is simply association. Take another illustration more closely

connected with history. Let an untrained, or uneducated person undertake to narrate a story. In most cases, he will place as much emphasis upon "unimportant" details, as upon the important features. Why? Simply because all the incidents are closely "associated" in his mind, and they tumble out as they went in. This is association. What, then, would organization be? If this mind had been trained, so that it had the power to select and arrange the details according to their interdependent relationships, in other words, to organize, then undue prominence would not be given to unimportant matters, but these would illumine the important ones.

The distinction may be summed up in the following way: There may be association without organization, but there cannot be organization without association.

In history work one condition at least is essential to organization, viz: Ability on the part of both teacher and student to discern or perceive and handle facts as real things. Unless the pupil has an ability to handle mentally facts that are contained in the printed statements of books, in the spoken words of conversation, or the lecture, and in the events or occurrences going on around him all the time, picking them up, sorting them out, and arranging them by putting them here or there according to a purpose, just as a farmer will pick his apples, and gather his grains, and put one kind here, and another kind there, he is not yet in a condition to organize facts into knowledge by sorting them and putting all of a kind together to suit whatever purposes he may have. It is the business of the teacher, therefore, first of all, to get him into this condition.

(2) What principles must be followed in making a good and thorough organization? These I will simply name, although if time permitted explanation might set them forth completely. They are: (a) Organization must be a correlation, and not a mere aggregation. Materials must be integrated, not simply collected. (b) Organization must be based upon the psychological laws of the "association of ideas." (c) Organization must recognize and follow pedagogical principles in order to secure proper assimilation of materials. (d) Organization should have reference to the future needs or work of the pupil as teacher, in so far as it is possible to do so.

(3) How may the pupil best be made to apply these principles now as a student, and later as a teacher? Organization must take place in the pupil's mind, and the problem of the teacher is, How to produce it there. With teachers and with mature people organization is a self-process, but with young people it is not yet likely to be a process, at least not habitually so; and it is the business of the teacher (a) to develop a tendency (where none exists) or to further increase it (where existing), and (b) to induce a habit of organization, so that eventually it becomes a self-process. The practical question then is how best to induce this habit of organization. My own experience tells me that the best way is by working with the pupils daily in recitation, and helping them to organize materials or facts that are in their minds. Facts have come into their minds through one or more of the following ways: (a) Through reading the topics or pages assigned in the text. (b) Through reading references in the library. (c) Through other or previous studies. (d) Through conversation, or hearing lectures, etc. (e) Through observation, and (f) Through experience. By realizing

these sources of information, the teacher is enabled to draw out everything in the pupil bearing upon the subject in hand and to help him put his body of facts into their proper relations. When this occurs day after day and for some time, a habit is induced, and the process in the end becomes a self-process, which is the object sought.

This brings me to the second and third points of difference with Prof. Walker's views, viz: That "organization should not be attempted by the academic classes" and the question of the value of intensive study. From the comments and elucidation of his paper, as just given, I am led to believe that the issue is not so sharp as I at first supposed, for unless I am mistaken, Prof. Walker practices considerable organization in his "academic classes." But however this may be, I will suggest some of the different modes of working with pupils so as to induce the habit of organization. They are:

(1) Skillful oral questioning in recitation. By this I do not mean mere memory, or reproduction, or rehearsal questions except rarely, and chiefly for purposes of drilling, but questions of interpretation, of import, of significance, thought questions, whose answers disclose the real status of the facts in the pupil's mind.

(2) Written answers to special questions or to special topics, compelling the putting together of facts already known, or to be found in the work assigned, in a new way, or in a different relationship. The questions or topics from being simple at first, and confined as far as materials go, to a few pages of the text, may become more inclusive and extend to materials collected from every possible source.

(3) The use of outlines, syllibi, charts, maps, etc. These may be made by the teacher alone, or by the pupils alone, or by both working together. They may be placed upon the blackboard or they may be printed and used supplementary to, or in place of, a text. But in whatever way they may be made, both teacher and pupil must constantly remember what an outline or syllabus is for. First, it is a guide for the use of materials in their organization into knowledge; or, second, it is a cast representing the form which organization has taken in the mind. If it is made at the beginning of a study, it is a guide; if at the end of a study, it is a cast. But whether a guide or a cast, it is not itself organization, but merely an aid for organization in the first place, and for memory in the second place.

(4) Intensive study, and here I mean the most intensive study possible of a limited, perhaps a very limited field, after a general view has been secured. I have put the matter in this specific and circumscribed way because I believe that much of our so-called "intensive study" is more extensive than intensive. It is in the field of intensive study, where, it seems to me, there is one of the very best opportunities for inducing the habit of thorough organization; for it is here that the process of organization for the whole unit extends over more time in its completion, the materials for organization can be more carefully and more thoroughly scrutinized and studied in all their bearings, and they can be brought in from more numerous and widespread sources, thus a more thorough interpretation and organization of parts as well as of wholes can be secured.

Now all of this work that I have been describing (and more might be indicated) may be done by the teachers of academic history in their academic classes, and it is commonly called academic work. So it is, but it is also a good deal more. According to my view it is pro-

fessional work of a high order, just as much professional as is the work which is ordinarily called professional. Academic work may be non-professional in both character and results; but academic work done in the way in which I have described is certainly as fundamental in the art and practice of teaching as is anything that may be done in technical methods work.

In what I have just said, however, I do not wish to be misunderstood. I have said it chiefly for two reasons, first, in explanation of what may be done in the way of organizing a topic in "academic classes," as opposed to the view of Prof. Walker in his paper; and second, to indicate the truly professional character of such work.

While, as it seems to me, the principles governing the organization of historical materials are the same, whether one is studying history simply to know it for its general value, or whether he is studying it with special reference to teaching it, yet, I also believe it to be equally true that there may be different forms or kinds of organization for different purposes or for different degrees of capacity and attainment on the part of pupils. And it is here that we find not only the warrant, but also the necessity for strictly professional work wholly or partly separate from academic work, in which the principles of organization, and the habit of organization, learned thoroughly and properly in the academic work, are brought to bear upon the selection of special materials, either old or new, or both, and their special arrangement for special purposes. Therefore, I have set down above as one of the principles of organization, this one, "It should have reference to the future needs or work of the pupil as teacher, in so far as it is possible to do so." The teacher of academic classes should constantly have this in mind, but this end cannot be effectually secured without special courses in organization, which would be pursued wholly for professional purposes. My thought here is not centered upon the so-called "professional reviews", but upon special courses in organization where the work in the district schools, and the grades, and the high schools shall be studied, and materials selected and organized with special reference to each line of work, so that when the pupil has finished them he will have his academic work organized so as to enable him to accomplish a specific professional purpose. My recommendation, if called for, would be the establishment of such courses.

LATIN AND GERMAN SECTION.

Leader, J. W. LIVINGSTON, Stevens Point.

WHAT KNOWLEDGE OF GERMAN GRAMMAR SHOULD STUDENTS IN GERMAN BE REQUIRED TO MASTER?

B. M. DRESDEN, Oshkosh.

Grammar deals with what can be brought under general laws in language. That part of grammar which concerns itself simply with forms and ignores the meanings of the grammatical forms as far as possible, is called accidence (Formen-lehre); that which concentrates its attention on the meanings of grammatical forms is called syntax.

Accidence deals, e. g., with the endings of declension and conjugation. As the form of a sentence depends largely on the order of its words, word-order is an important part of syntax. It is generally admitted that a grammatical rule without an example is of no practical use; it is an abstraction which is incapable of entering into any direct associations with anything in the language itself. The example, on the other hand, is concrete; it can be impressed on the mind by mere mechanical association, while at the same time it is logically associated with the rule, which it explains, illustrates and justifies. The example serves also as a standard or pattern by which the learner can recognize other examples of the rule as they occur in his reading.

In choosing our text-book in grammar, therefore, we need to remember that the first object of grammatical study is not the acquisition of rules, but a practical command of the language itself; rules are mere stepping stones to the understanding of the examples; so when the latter are once thoroughly understood, the rules become superfluous and may well be forgotten.

The Report of the Committee of Twelve says: "To ask a learner to upset into alleged German such sentences as: 'The pupils' coats and shoes are in the maids' hands,' or 'I give warm clothes and red apples to poor little children,' is, to say the least, inexpedient. Instead of a help, it is a hindrance to the acquisition of a sensitive feeling for the language. Rather than exercise his wits upon the translation of such English into such German it were much better that the learner should do no English–German translation whatever, but simply read real German and learn the grammar by observation and appropriate drill."

We must bear in mind that some rules require hardly any example, they are practically of universal application or self-evident, or of no intrinsic value and only added to give completeness. But it is a safe principle never to take it for granted that a rule does not require an example. Dr. Hy. Sweet, President of the Philological Society, says: "A good example must fulfill two conditions: (1) It must illustrate and confirm the rule unambiguously. (2) The example must be intelligible as it stands, without further context." And I may add a third quality: "It must contain sense."

I have dwelt thus fully on this topic, not because it has any direct connection with my subject, but rather because it follows as a result of the query: "Is there in existence a grammar which teaches the amount of German grammar required, neither more, nor less?" To my mind, such a grammar is yet to be written, all those in existence today contain too many bushels of chaff to the very few grains of wheat. A good deal of that chaff is the low quality of illustrative material given. Another trouble with nearly all grammars today is the elevation of the paradigm into too high a place. The paradigm ought to be regarded mainly as a summing up. It must be remembered that "grammar is there for the sake of the language and not the language for the sake of grammar. The recitation of paradigms, rules and exceptions is always in danger of degenerating into a facile routine in which there is but little profit. The important thing is not that the learner should acquire facility in reciting paradigms, quoting statements and explaining principles according to the book, but that he should acquire facility in understanding and using the language. It is of small use to be able to state correctly the principle of adjective declension, so long as the pupil in attempting to apply the principle in a simple case, is

obliged to stop and think, to recall his grammar, and perhaps to guess after all. The right forms must be so bred into the blood that they come naturally from tongue and pen." I do not wish to be understood that I am opposed to the learning of paradigms and rules,—I am thoroughly in favor of it, but only as a subsidiary measure,—the pupils must not be led to think that these dry, old bones are grammar.

Perhaps it might be well to urge another caution. While philology may be made an important aid in teaching grammar, it should not be overused. Cognate forms may be just far enough removed from one another to make it doubtful if the pupil will discover the similarity. Grimm's Law in homeopathic doses may be well enough, but by the barrelful it is sickening.

We are now ready to see how much grammar should be taught to Normal school students.

The formal study of grammar cannot be wholly eliminated, but it should be reduced to a minimum. In studying a new language, three enemies present themselves to the novice: pronunciation, vocabulary and grammar. The first can be conquered only by eternal vigilance, beginning the first day of the study of the language, and ending only with life. The same may almost be said of the acquisition of vocabulary. This might be a good place to urge the use of German script, but as this would lead me too far from my subject, I only wish to refer you to the report of the Committee of Twelve on this subject. It is good medicine both for those who favor and those who oppose German script.

The first difficulty of practical importance in teaching German grammar is the gender and declension of nouns. If the teacher attempts to lay down complete laws, he will compel his pupils to do what German children do,—work 15 or 20 years to learn the noun. It is quite enough if a student can after two years' work tell gender and declension of about two hundred and fifty nouns instinctively; for the rest dictionary will do. As to rules of genders, it is enough if the pupil knows that days of the week and months are masculines, words in *chen* and *lein* and infinitive substantives are neuters, and words in *ei*, *neit*, *keit*, *schaft*, and *ung* are feminine. There is danger that too much time will be given to unimportant details, such as rules of genders, declensions of foreign nouns, lists of irregular verbs, etc.

Next in order of difficulty comes the declension of adjectives, it is scarcely possible to drill too much upon that.

The conjugation of verbs, both weak and strong, presents but few difficulties. Careful comparison with English grammar will show that there is no essential difference between English and German conjugation. As to learning all of the 276 simple German strong and mixed verbs, to my mind it is all nonsense. About 50 of the most common of these should be known, and that thoroughly, then use the dictionary for the rest. If they use their German after graduation, use will teach them to the pupils, if not, they will not need them. The same may be said of prepositions,—teach them by use, not by rule.

The order of words in a sentence is very difficult. I have devised a diagram which I find very helpful in teaching this topic, but after all is said and done, practice, practice, practice, every day will teach the right order to a pupil as nothing else will.

I am thoroughly in favor of colloquial exercises preceding the study of formal grammar. Give the student something to work upon

before you give him the work. In my own work, I do not touch grammar for six or seven weeks, reading, dictation and conversation are used to build a foundation, then the grammatical structure can be reared. Long before the student has commenced the study of conjugation he will be able to distinguish the tenses, will have gained the "grammatical sense," the sense which you and I possess by which in our mother-tongue we recognize intuitively and without recourse to any grammar whether we speak correctly or not.

A most effective drill for grammar can be had in the reading lesson. Care must be taken, however, that the reading lesson be not made a reading lesson in name only and a grammar lesson in fact. An occasional grammatical question will help to fix in mind important grammatical points, but the reading lesson must not be lost sight of. *Much* reading should be done for the sake of reading, that the pupil may get the "feeling" of the language; and *some* reading should be done for the sake of grammar, that the pupil may get the "grammatical sense."

I can do no better than to offer two short paragraphs from the Report of the Committee of Ten as a summing up of what I have said.

Requirements for Elementary German:

"Familiarity with the rudiments of grammar and especially with these topics: the declension of articles, adjectives, pronouns and such nouns as are readily classified; the conjugation of the weak and of the more usual strong verbs, the commoner prepositions, the simpler uses of the modal auxiliaries, the elementary rules of syntax and word order."

Requirements for Advanced German:

"In addition to a thorough knowledge of accidence, of the elements of word formation and of the principal values of propositions and conjunctions, the scholars must be familiar with the essentials of German syntax, and particularly with the uses of modal auxiliaries and the subjunctive and infinitive modes."

This, it seems to me, is the least a Normal graduate should know in German grammar.

SHOULD ANY ATTEMPT BE MADE TO ACQUIRE A SPEAKING KNOWLEDGE OF GERMAN? IF SO, UNDER WHAT CONDITIONS AND TO WHAT EXTENT?

CLARA SCHUSTER, Platteville.

Believing that the leading objects in studying a living language are:

1. To become familiar with the life and best thought of a foreign people, and,

2. To acquire a practical use of their language, I would answer the first question of my subject briefly and decidedly, "yes."

"Under what conditions and to what extent?"

It seems evident that the time when a language is most easily learned is in infancy and early childhood, when the powers to imitate and to memorize are keener than at a later period; when habits are readily formed; when new ideas are learned with new expressions.

The little child learns to speak a language naturally from its parents without study and without apparent effort. It learns to speak with some degree of grammatical exactness, provided the parents speak grammatically, without ever being bothered with the declensions of nouns and pronouns, or with the conjugation of the verbs. Here, then, we should find the most favorable conditions for acquiring a speaking knowledge of German.

Very few, however, have the opportunity of learning a language in this way, and few have the opportunity of beginning the study of a foreign language before the age of 15 or 17.

Unfortunately for themselves and their teachers, many who study German cannot begin even so early as the age of 17.

In discussing the question before us, it is my purpose to explain so much of my method as to show how under the existing conditions, I endeavor to teach some speaking knowledge of German.

The plan which we adopt for teaching a foreign language must depend upon the time in the student's life at which we teach, upon the number of years to be devoted to the study, upon the purposes for which we teach, and upon the results which we expect to attain.

When German is to be taught to children who have not yet studied formal German, perhaps to children below the eighth grade, I believe the natural or imitative method will accomplish most, that is the method through which we can teach the most conversational German to pupils of this age.

But for students who have reached the junior year in the high school and the second year in the Normal school, a plan which will call into play the reasoning powers as well as the memory, will surely bring better results.

A noted teacher of modern languages once said, "The way to study a language is to take it in at every pore."

The students in my German classes are all the way from 15 to 28 years of age, and we have two and one half or three years to devote to the study.

Keeping in mind that we purpose to give our students a practical knowledge of the language, a reading and speaking knowledge of German, the question confronts us, "How shall we accomplish our aim under these conditions?"

From observation and experience in teaching German, I have concluded that the method best adapted for presenting this subject to the mature students, to the few who go to college or university and to the many who go to no higher institution of learning, for all these the method which will secure the most intelligent reading and the greatest amount of conversational German, is a combination of the natural and grammatical method.

That there may be no misunderstanding, I will state that I thoroughly believe in the disciplinary value of German. Indeed, I believe that for those students who study no other foreign language, either ancient or modern, the disciplinary value is of sufficient importance to justify the study for that end.

We want the systematic, accurate knowledge that the grammatical method affords, but we must also make the language itself of use to the student.

We cannot hope to make fluent conversationalists of our students by the close of a one hundred weeks' course or even a three years' course

but we can give them such a foundation that by advanced study or by contact with Germans or by self-improvement, many may become so.

It would seem that a two or three years' course in German ought to give the average student the ability not only to read German understandingly, but also the ability to speak in German concerning the affairs of his everyday life.

Should a young man who has taken two or three years of German be in the employ of a merchant, he ought to be able to speak enough to make himself thoroughly understood to a German customer as well as to understand the customer.

Should he hold a position in a bank, I would expect him to have enough German at his command to deal with German customers in their language, and that practice would strengthen and increase his power to speak.

To give even this command of the language, patience and untiring effort on the part of the teacher are necessary.

As the first requisite in securing the ability to speak German I would emphasize care in teaching exact pronunciation at the very outset and the necessity of continuing to drill pronunciation until the student can with ease pronounce and read correctly.

2. That the vocabularies memorized contain only such words as the student will use in speaking of the objects about him or of common daily affairs.

3. That colloquial German be introduced with the first lesson and that the conversational work be continued through the entire course.

Usually I have begun this part of my work by asking easy questions based upon a sentence previously memorized by the class. The question furnishes the vocabulary and form for the answer.

Then as the vocabulary widens, I introduce exercises that will give a chance for greater independence in the use of sentences.

When we have five or ten minutes to devote to such an exercise, we occasionally imagine that we are in a store. One person acts as merchant and the rest as customers. Or we imagine we are at dinner and the pupils ask to have the various articles of food passed.

Occasionally when we have but a few moments to spare for this kind of work, the pupils ask questions of each other, anything they please and of anyone in the class.

When we begin to read texts, we still continue the conversation. First by asking questions to bring out the story and requiring complete answers from the pupils, and then by requiring them to tell the story or a part of it, in their own words. Quite frequently I read some simple story like "Dornroschen," or "Hans in Gluck," to the advanced classes and ask them to reproduce it, orally or as a written exercise.

Sometimes when a story has been given orally, it is written out and handed in for close criticism. Letter writing and brief compositions on easy topics are other devices to which I resort to accomplish my purpose.

In summing up I would say the earlier in a child's life we begin to teach, the more favorable are the conditions for learning to speak German; that our Normal school students should, in two and one-half or three years, acquire enough of the language to converse upon the more simple topics in which they are interested; and that to accomplish this we must thoroughly drill pronunciation and persistently teach conversation.

IN THE STUDY OF LATIN, MAY THE READING OF AN ENGLISH TRANSLATION OF A LATIN AUTHOR, BEFORE THE STUDY OF THE LATIN AUTHOR BEGINS, BE OF VALUE?

C. W. SMITH, West Superior.

As I see them, the general and ultimate purposes in the study of Latin, in Normal schools or elsewhere, are two: first, to gain the power of exact expression of thought in idiomatic English; and second, to gain an insight into the literature, the thought and feeling of a great people, which has had more to do in making existing civilization what it is than has any other nation. To attain the latter purpose several things must be accomplished. The reading must be widely varied, must be done, of course, in the original if the thought and feeling are to be reached; and this can be done only by an acquaintance with the language which amounts at least to understanding the Latin itself, or better, to an ability to think in Latin. So far as the short course in Normal schools is concerned, this second purpose cannot be attained; but the work may tend toward that as an ideal, nevertheless.

Our general purpose, then, is the first of the two I have mentioned,—to gain the power of exact expression of thought in idiomatic English. The progress toward both purposes must be through getting the exact thought of the Latin author. The legitimate tools for doing this are: 1, knowledge of forms; 2, of vocabulary; 3, of syntax, which is the key to the meaning; 4, of the Latin order, and 5, reading the Latin. Not one of these is a worthy end in itself, but a means to an end,—that of getting the thought.

However, the proper use of these tools realizes a secondary purpose,—secondary, not in importance, but simply not one of the general purposes; that is, a thorough and rigid training in patience, discrimination, thoroughness and accuracy. The student can receive this training only through his own careful, painstaking and accurate work. I believe that an intensive study of some one classic will do more to make a Latin scholar, conduce more to habits of clear and sound thinking, than a more extended course of reasoning covering more time.

Such being my view of the purposes of the study of Latin, and of the ways of realizing those purposes, the question given me as a topic has appeared to me as one of small importance, at least after it has been answered emphatically in the negative.

I can see a possibility of value in such a reading of a translation in furnishing an apperceiving basis for the work that follows. That is, the student might get an idea of the general purpose and spirit of the author, of his individuality, of the general line of argument or of the story that might render his subsequent work in that author easier and more rapid. Any farther value I cannot see. Of course the setting of the author, the place of his work in the literature or history of Rome cannot be obtained from reading his work.

So far as the first value is concerned,—getting an idea of the general purpose of the author,—if the teacher be unwilling to permit the student to discover it for himself, it can be given with less loss of time and more force, by a few pointed sentences by the teacher, or by a paragraph of the introduction which is inseparable from a modern

school text. The same may be said of the second point, getting an idea of the line of argument or the story. If the teacher desires the student to know either before he comes to it in reading the Latin text, he can get the matter before him by means of a synopsis.

And, finally, as to the supposed result of such translation reading, that is, making subsequent work in that author easier and more rapid —either facility or celerity reached in that way surely defeats the very purpose of the study of Latin. The whole matter can be made easiest by discarding the Latin altogether and reading all in English.

The chief value that the student gets from the study of Latin, aside from its bearing on his English, is the power of close and prolonged application, of persistent effort, of accurate reasoning,—and the adequate reward of this effort is to see the meaning of the author unfold itself, slowly perhaps, but clearly. If there is any value in studying Latin, it is the digging that brings it out.

Therefore, the possible values of a previous reading of a translation are at best negative, and, since the desirable results sought (if they be desirable) can better be reached by an outline or a synopsis, which takes much less time and effort, the concluison is inevitable that translation reading is a waste of time and energy. Moreover, such a reading is not only negative in value, but I believe it has in it positive evils as well.

In every class there are two kinds of students,—those who are always leaning on someone or something, always in search of a prop, and those who have a real interest in the subject, and face its difficulties and conquer them. For the former class I see a prop in this translation reading. It would be grasped at like the proverbial straw. They would remember it, copy it, do anything to get help through the difficulties to follow. I don't mean to say that such students might not avail themselves of a similar aid in any case, but such a putting of temptation in their way would aggravate their tendency to avoid the very difficulties which make them strong, and which give Latin its value as a discipline. Indeed, any aid but the legitimate one of grammar and vocabulary would just as surely cheat every purpose of the study of Latin, as the use of a graduated arc would cheat the purpose of a problem in pure Geometry.

But the effect on these weak ones is not the chief evil. That is its effect on the strong, for it would cheat them out of part of their reward for diligent work,—getting the thought through their own efforts. Further, it would certainly tend to dull their interest, because the text read would not be new. That fact alone, it seems to me, is an all-sufficient objection to a previous reading of a translation.

Another thing is the difficulty of getting a translation in idiomatic English. The translation ordinarily to be obtained is abominable, and would be extremely effective in destroying the student's hard-earned power of translating into English, instead of into Latin-English. The respect given to words in print would intensify this result. And, on the otner hand, the better the translation read, the less of the spirit and individuality of the author the student would get. Therefore, even if the evil be lessened by reading a good translation, more and more will the good to come from it be restricted to what, in my opinion, can better be given, if given at all, by an outline or synopsis.

Further, if the purpose of studying Latin is to get a mere superficial knowledge of the work of an author, a knowledge that doesn't reach

down into his feelings, his style, his individuality, then by all means read the Latin classics in translation. It surely isn't worth while to spend years of plodding, hard work for such a purpose as that. What other purpose translation reading in connection with the study of Latin can serve, I cannot see. Its possible utility as an apperceptive basis is somewhat shadowy. Surely a better basis is furnished by an accurate knowledge of inflections, vocabulary and syntax.

In conclusion, I can see no desirable result in a previous reading of a translation which cannot be reached more briefly and effectively in some other way, to say nothing of the undesirable results.

IN WHAT WAY MAY THE WORK IN BOTH LATIN AND GERMAN BE MADE TO CONTRIBUTE MOST TO THE STUDENTS' COMMAND OF ENGLISH?

W. S. WATSON, Whitewater.

I want to say before beginning the discussion of this subject that the writer has never taught Latin and does not feel competent to discuss the methods and aims of Latin teachers. So far as the lines of work in Latin and German run parallel they can be considered in a single paper, but it would seem that in a number of respects the aims of the two departments are not, and ought not to be, identical.

It is generally conceded that students in our secondary schools have a poor command of the English language. There is no complaint so common, the justice of which is so unquestioned, as that which issues from the colleges that their students cannot speak and write correct, forceful English. This condition is so universally recognized that it is needless to dwell upon it here.

The question for us to consider is rather, how the students' command of English can be most helped by the study of Latin or German. The ability of students to use good, clear English depends upon several things. First, they must know the correct forms. Although English is said to be a grammarless tongue, yet our students hear so many incorrect forms, they are so completely surrounded with slang and street idioms that a knowledge of pure, correct English cannot be obtained by imitation alone. There must be some accurate knowledge of grammar. Secondly, they must be on friendly terms with words. Their vocabulary must be complete enough to allow them to express their thoughts with force and variety. Lastly, they must have acquired skill in expression—gained largely by practice under criticism—self-criticism or criticism by another. The value of hearing pure, correct English is an important factor that must not be omitted.

The study of a foreign language ought, under favorable conditions, to give assistance along these lines. The amount of this assistance will depend to a considerable degree upon the general method followed by the teacher. The so-called natural method can do but little for the students' English as the work is carried on wholly in the foreign tongue. If the aim of the teacher is to have the pupils obtain a speaking knowledge of the language, then emphasis will be placed on that phase of the work and training in English will be practically *nil*. In fact, the structure of the Latin or German sentence is so unlike the English that an imitation of that model may do positive harm to the pupils' habits

of sentence building. On the other hand, if the primary object before the teacher is mental discipline acquired by a study of the principles of grammar and by translation of the literature into idiomatic English, then the incidental training in English will amount to almost as much as the training in the foreign tongue. Between these extreme methods are many which partake in part of features of each.

Many students have testified that their first clear understanding of English grammar came only after an acquaintance with that of an inflected language. In a language like ours where relations are largely expressed by the use of prepositions, case for example has but little significance. But after an acquaintance with the declensions of either German or Latin such relations take on a new meaning. Here is certainly one way in which the study of a foreign tongue helps to a more exact knowledge of one's own. On the other hand I have noticed that those students who bring to the study of German grammar a fair knowledge of English grammar are the ones who find the work easy and who really master it most successfully, thus showing that such knowledge acts reciprocally. Again, it is exceptional to find students who are familiar with even the English verb forms. You can ask a class of thirty members for the present passive infinitive of a verb, or the present active participle and not more than three or four will be ready with a correct reply. You may say that the study of English grammar ought to have taught these forms. I can only answer from my experience that, while, theoretically, it should teach such common verb forms, yet practically it does not, and it is a condition and not a theory that we must deal with. Those students who take up the study of German after having had Latin, invariably show a knowledge of English grammar superior to that which any of the students bring to the work who have never studied any language but their own, thus showing that an acquaintance with an exact, highly inflected language has helped to a better knowledge of their mother-tongue.

Translation from a foreign language should help pupils' English. In the first place it increases their command of words, not only by adding new words but it forces the students to discover new uses for old words, to discriminate shades of meaning that were before wholly outside of their ken. Next it gives facility in expression, affords practice in the use of equivalent and alternative expressions, and gives a flexibility and variety to language that is so desirable. This is especially true when rapid review work and easy sight reading are part of the requirements. It also causes the pupils to appreciate the idioms of their own language and gives them opportunity to compare these idioms with those used by another people. Finally, but not least in importance, it develops the habit of self-criticism. This leads to accuracy, clearness, and precision of expression which is so rare and yet so desirable. The literal translation in which the idiom of a foreign language is not expressed by the English idiom may be desirable and necessary to reveal to the teacher pupils' knowledge of construction but it has no value for training in English. If pupils are permitted to simply render their German or Latin literally without being required to also translate the passage into smooth, idiomatic English, then they are receiving only a part of the training to which they are entitled. There is also danger of students introducing some of the foreign idioms into their English unless the teacher is constantly on the watch. This work does not help with English sentence building. Latin and German sentences are not con-

structed on the same principles as English sentences, and so serve as poor models for imitation. One prominent defect in the English used by our pupils is in the line of imperfect sentence structure. Loose, rambling, disjointed, sprawling sentences are characteristic of much work. Again, translation from another language will not teach paragraphing. True composition consists in clothing ideas that have shaped themselves in our own minds. Translation, then, is only an aid preparatory to the actual work.

It is said that about two thirds of the words in Webster's International Dictionary are classically derived, most of them coming from the Latin. It seems to me that there is opportunity in the Latin class for our students to learn much in regard to roots, suffixes and prefixes if the teacher takes especial care to present these facts grouped in such a way that the students can use them in all their work. One of the most useful influences resulting from a study of Latin is the help to the students in all later work in understanding the meaning of English words without constant reference to the dictionary. My own experience as a student of Latin teaches me that the best results will never be obtained if the pupils are left to ascertain these facts by themselves, unaided by special help from the teacher. If more work in philology and etymology were done in the German and Latin classes, it would enable the students to master new words for themselves. Courses in word analysis would then be unnecessary.

So few of our students will ever use their knowledge of Latin or German in a practical way that the training side ought to stand out prominently in all our courses as the side to receive the particular emphasis of the teacher. The rendering of English into German or Latin will not help the student's command of his native tongue; but all the grammatical work and all the translation can be made to bear on this weak spot in the training of our students. I am not ready to say that this is a panacea that will cure all bad cases, or even when applied by itself alone, any case; but for the average student, translation into smooth, idiomatic English of the thoughts of another, will give power when he wishes to express thoughts of his own. The translation is, if you please, a kind of mental gymnastics which gives strength when the student has ideas of his own to express.

A teacher of a foreign language said a few days ago: "The teachers of foreign languages in our Normal schools are today teaching English by means of the foreign languages, in place of merely the foreign languages." Was this censure or praise?

CAN THE LATIN AND GERMAN WORK IN NORMAL CLASSES BE SO ORGANIZED AS TO GIVE FULL SCOPE TO INDIVIDUAL PREPARATION, CAPACITY AND OPPORTUNITY?

PAULINE E. WEIS, Milwaukee.

The necessity for such organization of the work as to give full scope to individual capacity, preparation and opportunity, is far less imperative for Latin than for German. There has long been a fixed standard of Latin requirement for college entrance set for the high schools; few schools have other than college trained Latin teachers of sound

and liberal culture; and in the high school course, there has been more or less weeding out of hopelessly bad material, so that students entering the Latin course at college or at the Normal usually have uniform preparation. Yet there may be those who have not studied Latin for some years, taken no pains to review before entering, or those who show great deficiency in preliminary training. Since the aim in the Normal school is to give two years of work in Latin beyond high school requirements and such work in methods as will enable the student to teach Latin, no teacher in such a school can afford to spend time helping those deficient in academic Latin. All who are thus deficient should be dropped from the course so that the teacher may devote her whole attention and resources to the task of training those who give reasonable promise of pursuing the work successfully. Such procedure in college classes would be a crime, but it is not the province of the Normal school to give collegiate training and the question is not whether a mastery of Latin might not be interesting and profitable to all, whether with considerable individual attention they might not succeed in making up deficiencies, but whether their preliminary training and ability will enable them to pursue more advanced work two years and become a creditable teacher of Latin. The past two years, having dropped the preparatory work and adopted a purely advanced course, it has been necessary to do considerable individual work, bridging over, as it were, but under the new curriculum it seems best to drop all who are in any wise below the standard, for with the very best material two years is a lamentably short time to prepare for Latin teaching.

Given, then, a class conforming to the fixed standard of attainment in Latin set for high school graduates, there is abundant scope within these limits for individual work. Without changing the class plan or organization, or with but slight modification, the teacher can study the individual needs of each student. One may fail in appreciation of some point of syntax, another be lacking in knowledge of mythology or Roman history, another find difficulty in understanding the thought or logical connection of a passage. Special work designed to help the student overcome any weakness may be assigned and reports made in private. If several members of the class require the same work it is often possible to meet them at sometime other than regular recitation time. Those who have mastered the assigned work may be held to read at sight, while the others are dismissed to master the regular work, and again the former be excused to perform some set task while the others receive additional help, review or drill. The baneful influence of the use of translations can only be overcome by teaching methods of independent work, by taking the regular class period for the preparation of the new lesson. Much profit is also derived from mastering a topic on Roman life or some Latin author and presenting it clearly, forcibly and attractively, each student having a different topic, the teacher sometimes furnishing references. Criticism may be offered in private as to content, literary form and manner of presenting it.

This question is a far more difficult one for German. There is little uniformity of attainment in German among students from various high schools, outside of the larger cities, due first to lack of a fixed standard of what the aim of German teaching in high school should be, second to inability of teachers, and to the fact that often German speaking stu-

dents are credited by an American teacher with German of the high school course. Consequently, many of all grades of ability present themselves, some having no standard of pronunciation, unable to distinguisn an adverb from a preposition, unable to spell or punctuate or write a correct sentence, and, in fact, those of German parentage having a speaking knowledge more or less free from dialect and corruption, are most often more deficient than American students. To drop these students from the course, however, would be impossible and unjust, for the crying need of our schools and colleges is for teachers of German able to speak and write the language, of liberal education and especial training for teaching. Native German teachers fill many positions in this country but often fail of the largest success because of their insufficient command of English, and their lack of tact and understanding of American conditions of life. Many English teachers have in more or less residence abroad acquired some speaking knowledge of the language, but the ideal German teacher is one of the same nationality as his pupils, who, bilingual from childhood, has a liberal education and special training for teaching. Too long have the Germans in America been blind to their great advantage and opportunities open in this field, so that any German speaking students, though deficient in preparation, are welcomed with delight to the Normal course and it is the teacher's privilege to study their individual needs and meet them by especially adapted assignments of work; to seek to inspire in them not only such a love for the German and the German literature, that they will feel constrained to seek higher opportunities for study than those here afforded, but also gratitude that it has been their fortune to attain without conscious effort a speaking knowledge of two languages, and to show them the possibilities open to a properly equipped German teacher.

There will always be English speaking and German speaking students in the same class and to divide the class permanently on this basis would be an obvious disadvantage, as some lines of work may very profitably be pursued by both. The German students thereby learn more and more the needs of the English student and gain ability and the method of presenting their language to Americans intelligibly, while the English student naturally also gains much from hearing the language spoken by various members of the class.

In the present crowded curriculum, it is almost impossible to deviate much from class organization, but it is possible to meet the individual needs of the class in several ways. By different assignments of work, by giving to groups of threes or fours work that will meet their need. One of the best students in the class may be asked to take a group to another room and drill them while the teacher devotes herself to the others, giving another group blackboard or written work, while she helps others and in turn gives these a written task, while she points out errors to others. Within a class of sixteen juniors last year there were four groups doing different work and sometimes the regular recitation time for two days was divided into ten or fifteen minute periods for private interview, and those not seen in this time were met before school or at some other appointed time.

Yet rarely is it possible for any student, however devoted, to find time for much work beyond the regular prescribed course. Twice the time might profitably be spent on preparation. Another difficulty is the want of advanced Latin authors in text-book or reference library and

by far the greatest obstacle to scholarly attainment lies in the habit which seems prevalent, that the student takes from text-book library a certain author, then another, reads the assigned work, obtains his credits on the register, returns the book, finishes the course, often without having in his possession a single printed page of Latin.

Commendable, excellent and generous as is the system of free text-books, yet students of languages should above all else own a working library. Well and with excellent results might we follow the system in vogue in Germany of reading the same author again after six months and again after a year.

REPORT OF THE LEADER.

The following are the points upon which the members of this section agreed:—

I.

The minimum of German Grammar in the shorter course.

1. Declension of articles, adjectives, and such nouns as are readily classified. (About 250.)
2. The conjugation of the weak and the more usual strong verbs. (About 50.)
3. The common prepositions.
4. The simpler uses of the modal auxiliaries and the subjunctive and infinitive modes.

II.

Shall any attempt be made to secure a speaking knowledge of German?

1. Conversation should be made secondary to a good reading knowledge, but conversational work in the German classes is a very effective means of fixing the German idioms.
2. The German students should be put in a position to help themselves later to the power of speaking German.

III.

An emphatic "No" was the answer to the question of reading an English translation of a Latin author before the study of the Latin author begins.

It was agreed that help similar to this should be given orally by the teacher. That this help should be sufficient to arouse interest in the author and to give the student a general idea of the author's purpose in the work, was agreed to very heartily.

IV.

How study of Latin and German may be made to contribute more to the student's command of English.

1. The Grammar should be compared closely with corresponding portion of the English grammar.
2. English derivatives from the Latin should be noted closely to help fix the Latin word and to get a clear meaning of the English derivatives.
3. More attention should be paid to translating into idiomatic English and such careful attention paid to choice of words that the student

shall acquire a sort of word-sense that leads to the selection of the most fitting word.

4. Sight translation should be made to contribute to facility in the use of good English.

V.

1. Miss Wies's plan of sectioning her class for individual work and calling upon the more competent pupils to help in certain sections, met with hearty favor. It was agreed that such work gives fuller scope to individual capacity, preparation, and opportunity.

2. It was agreed that under existing conditions no attempt should be made to prepare any except the very best students for teaching Latin or German.

3. It was the opinion of the section that students from the high schools come better prepared in Latin than in German.

J. W. LIVINGSTON.

LIBRARY SECTION.

LIZZIE P. SWAN, Leader.

SHOULD THE LIBRARIAN INSTRUCT STUDENTS IN LIBRARY METHODS? IF SO, FOR WHAT PURPOSE, AND TO WHAT EXTENT?

ANNE H. MCNEIL, Milwaukee.

That there should be instruction in library methods is becoming more evident each year. There is an increasing number of calls for teachers who are fitted to go out into the high schools of the state and organize the high school libraries and the present haphazard manner of individual instruction to meet occasional needs is not sufficient.

The question has been asked by some—"Why catalog the libraries? The teachers in charge know the books and can refer their pupils to needed material." The teachers may know all about the books and possibly can answer any question asked them, but it is unwise to depend upon the memory of any one person, however competent.

The school library is as much a part of the school's furnishing as any other necessary apparatus and to make the best possible use of books, there must be careful organization. A small number of books well organized and in charge of a teacher trained to get from them all the information they contain, is of more value than a much larger number of books not properly used.

A dictionary catalog calls attention to many important articles which otherwise might be overlooked. It makes the resources of the library more available and saves a vast amount of the teachers' and pupils' time.

Our teachers can do nothing for a child which will be of more value to him in after life than to train him in such a manner that he will leave school with a knowledge of how to use books and a desire for good books. Children should be made so familiar with the use of the

library that it will become an actual need to them in their future studies and great pains should be taken to show them the use of catalogs, indexes and all sorts of reference books. They will soon become familiar with them and handle them as well as older students.

In order to so train the children, our teachers must first be trained, and there is no better opportunity for teaching the use of books than in a Normal school.

The students are here given a chance to become familiar with books and libraries. Nearly all of the studies in the course are so taught as to require much reference work. Normal schools create an interest in good literature in their students through library reading. They also train their students to use much supplementary material in preparing their lesson-plans in history, geography and other studies.

There are two special lines of work which I think it important to include in a course in library methods,—the use of reference books and the organization of the school library.

The time for this work is so limited that both of these subjects cannot be treated thoroughly, and if one must be neglected, I think it should be the first. I do not mean by this that I do not consider the course in reference books as valuable as the course in organization, but if the time is lacking for both, special work in the latter is most needed.

The lectures given to the school as a whole deal entirely with points in the first topic, hence all get a little of the theory and, if they are so disposed, can work out problems which will fix this knowledge.

Then, too, as I before stated, nearly all studies in the Normal school require more or less reference work, so that students necessarily will get a fair knowledge of the use of reference books before completing their course without special training.

The course in organization I have given in our school is a very limited one; but it has enabled a number of those taking it to put the small libraries to which they have gone, into a more usable form.

The mere listening to lectures on library subjects cannot be called training. What the students need is practical work to supplement the theory. A definite amount of work should be planned and much drill should be given to aid in developing the principles and applying them to special problems set for the student to solve.

This work should be carefully looked over and corrected and continued drill given until it is plain that he has a clear understanding of the subject and has reached a definite standard in his work.

The main points which we have touched upon are the mechanical preparation, accessioning, shelf listing, classification, and cataloging of the school library; the preparation and use of pictures; making of reading lists for special days and subjects; the history of the township library movement and the use of the township and high school lists.

For a small library, the simplest forms sufficient for the easy identification of a book are all that is necessary. The students classify the books on the township list for practice in classification. We use the condensed accession sheet and on the shelf list, author, and title cards put only the most important points. I take up the main entry cards first and in class give the students all the forms of author cards which they will need in cataloging the books on the township and high school lists.

Following this, each student does individual work in the library, making the main entry cards for several books under each special form.

When they have sufficient practice in this, we take up the title and general subject cards. The new element in the making of a general subject card is the choice of a subject.

The principal point in the choice of subject headings is the exact designation of the subject and the absolutely consistent use of the same heading for the same subject with references from synonomous terms and related subjects.

The most valuable work and that which takes the most drill is the work of making subjects analytical. Here again they have had practice in choosing general subjects and this will aid them in the analytical work. The new point will be which topics in a book are important enough to bring out. Only good judgment and long practice will make perfect in this work. I believe in close analytical work and in a school library all subjects should be brought out which will be apt to be of value in any line of school work.

We follow the A. L. A. list of subject headings and all students are advised to get a copy of this, as well as of all other simple aids, before doing practical work in their schools.

If time is given in the course for further work, I should advocate giving a special course in reference books in connection with the above work, making a special study of each class of reference books and working out special problems.

The following is a short outline of the work which will be most valuable on reference books:—

1. A short history of the book—how made, its binding and care. A visit to some bindery should be made while studying this topic.
2. Aids in the selection of books.
3. Encyclopedias, general and special characteristics: Time, scope, maps, illustrations, portraits, special features, strong and weak points including whether strong in history, biography, geography, politics, sciences, fine arts.
4. Dictionaries, scheme of criticism: Spelling, pronunciation, definitions, special features. Compare differences as to quality and scope.
5. Hand-books of general information. Important thing to know of these is index.
6. Atlases and gazeteers. Important points: Accuracy, scale, quantity and quality of matter, engraving.
7. Indexes to periodical literature.
8. Other indexes and theory of indexing.
9. Bibliographies.
10. Almanacs and other statistical manuals as Statesman's Year Book.

TO WHAT EXTENT AND IN WHAT WAY CAN PRINTED LISTS OF BOOKS AND REFERENCES BE MADE MOST VALUABLE, NOT ONLY IN INDIVIDUAL SCHOOLS BUT BY A SYSTEM OF EXCHANGE IN ALL THE SCHOOLS?

CAROLINE E. SILLIMAN, River Falls.

In former times, even after the days when the Bible was chained to the desk, books were put behind bars and the ideal of the librarian was that he was a book-guard, whose duty it was to collect and preserve books from dust, vermin, and people. But in these days when

books abound and superabound, the librarian, keeping in mind that books are to be read, feels that he is a book-guide and studies all methods whereby books may be gotten off the shelves and into the hands of the readers.

One of these methods is the use of reference lists which may be divided into the following classes:

1. Suggestive lists of books for purchase, with publisher and price, such as the Bulletin of the Wisconsin Free Library Commission, containing the new book list, and the Township and High School Library Lists. The latter are much more serviceable to us as they deal with books which are better adapted to our needs.

2. Reference lists of material suitable for Arbor Day, Christmas, special birthdays, such as were sent out last year by the Wisconsin Free Library Commission.

3. Bulletins from the large public libraries, which are published either in the daily papers or issued monthly in pamphlet form. These often contain reading lists on topics of the day and may be very useful as basis for class lists, or for topics to work over for debaters.

4. Reference lists for use in specific classes as general history, science, art, and many others.

All of these except the last mentioned are recieved by the Normal schools of the state, and may be used in awakening and fostering interest in a subject which would otherwise remain unread.

The Township and High school lists, by their careful annotations, greatly aid in the selection of books for purchase, and when put into the hands of the student-teacher, enable him to choose more wisely his reading, thus raising the standard throughout the schools. They also enable him more wisely to direct the reading of pupils in the schools in which he shall teach.

These lists, which are general in their nature, aid us in many ways, but it is the lists belonging especially to Normal school work, arranged for the use of classes and for the individual student, to which we should give attention.

The purpose of these lists is to give aid in a subject at a specific time and to a specific student. Should he be obliged to look through the catalog, Poole's index and the Cumulative index, he would probably choose the first reference which bore upon his topic. This might be already in use or might not be best suited to his need and even after he had found an article his time for reading would have been consumed. With a carefully compiled reference list in his hand, he will obtain in the shortest possible time the article which exactly meets his requirements. This timeliness in meeting needs as they arise lies at the foundation of this method of assistance. As a time-saving device these lists are valuable to the student, teacher and librarian.

As the reference list contains not only a list of books and all the references to the periodicals which are bound in the library, but also references which are too short to be brought out in the catalog, (see the list of library references for General History, compiled by Miss Carrie J. Smith), it supplements the work of the catalog and of Poole's and the Cumulative indexes, occupying a niche all its own.

The catalog can be used by but one, or at the most, two, at a time, but since the lists are shorter they may be printed enabling many to select their material at the same time. They should be printed though with space allowed for additions, for, as the needs of suc-

cessive classes in the same subject vary from term to term, these lists must grow to meet the new demands made upon them. Not only may they be used in successive classes in the same subject, but also for classes in widely different subjects.

Last spring I compiled a reading list on birds for Arbor day, using the list sent out by the State Library Commission as a basis. It was used so little that I wondered if it paid for the trouble, but a few months later the science teacher wished to know what material we had on birds and I brough forth my bulletin, saving her time and mine in looking up the subject. She had no sooner finished with it than the teacher in English wished for some material upon birds in her class in English composition and again my list was used. For each I added a few references which were not in the library at first and which were demanded by the different points of view of the two teachers.

"If then as the different points of view which are continually presenting themselves a library's resources in these particular directions be enumerated, and if, moreover, these successive and minute reference lists be filed and indexed, something will have been done analogous to the 'placer' work to which a miner resorts to exhaust, if possible, all the ways in which the particles of gold might succeed in escaping his search," says W. E. Foster in "Papers prepared for the World's library congress."

If with close cataloging and the great amout of analytical work, there is a wider employemnt of the reference list on the part of our libraries, much will be done to give force to Mr. Adams' suggestion that a collection of books repeatedly and minutely recataloged is worth more to its readers than one of twice its numbers with no sifting processes and with infrequent cataloging or none at all.

A strong objection, and one the force of which we can all feel, is the lack of time to compile these lists. For each library to laboriously compile all its own lists is a duplication of labor which might better be expended in other directions. Reference lists should all be cooperative; for although primarily intended for the use of the schools issuing them, their general circulation as exchanges and adoption by sister institutions, considerably lesssens the necessity for others working out these problems for themselves.

Two objections might be raised to this plan of exchange, one, very unworthy of the "missionary of the book," is that he did not wish anyone else to make use of the list which had been compiled with so much toil and effort on his part; the other is, "My list is not complete. If I had the time I would work it out more fully and should be willing to have it go as my work." A reference list can never be complete. Books and articles are continually being published. Articles are found in unexpected places so that if a compiler waits for perfection in his list he will wait in vain.

METHODS OF UTILIZING PERIODICAL LITERATURE TO THE BEST ADVANTAGE.

MARY F. CARPENTER, West Superior.

Periodical literature in its widest sense includes all publications which appear at regular intervals and have no natural termination. Thus the term embraces not only our common quarterlies, monthlies, weeklies and dailies, but such publications as Appleton's Annual Cyclopedias, the Annual Register, the World's Almanac and the Statesman's Year Book, besides a vast number of pamphlets published by the government and various societies and institutions. It is not my purpose in this paper to cover all of these, but rather to confine myself to the periodical literature found in the reading rooms of our Normal schools, merely touching the subect of pamphlets and government documents. Periodicals are, generally speaking, classed according to their intervals of publication, and as technical or popular, special or general, according as they deal with one or many subjects.

To the casual reader it is inconceivable how much literature of real and permanent value appears in the current magazines and reviews. Of its importance to the student hardly enough can be said. Without doubt it is of more value in reference work than any other kind of literature. In our periodicals are represented the ablest thinkers and statesmen, the wisest scholars and scientists, the subtlest critics and philosophers, making them a library of permanent value. By reading them we come in contact with the finest spirits of the time. Here we may feel the pulse of society, follow the chief movements of the people, study the history of the time. Many works which have become permanent authorities in science, religion, politics, education and state-craft have first appeared in the magazines. It is here that we may catch the spirit of ancient and modern art, observe the birth and follow the growth of economic and religious institutions and become acquainted with the great problems of nature and humanity as viewed by experts. Periodical literature becomes more valuable each year. It has been urged by some that a surfeit of such literature, both juvenile and adult, is operating against the reading of books and formation of libraries, that the magazine has its place, but it also has its limitations. Undoubtedly there is much truth in this statement. Too much reading of magazines does form a taste for the short story and for the superficial sort of literature found in many of our current periodicals, but while this is true of our lighter and more superficial magazines, it is not the case with the mass of periodical literature of which the student makes use.

Should we not furnish as much of this material as is possible to the Normal school students? Every teacher must keep up with her age, and in order to do this there must be a generous supply of current periodical literature. Just how much each school can furnish must be determined by the income it receives for this purpose. A college librarian who has given the subject considerable thought and study reaches certain conclusions which it seems to me are equally applicable to a Normal school library. In his opinion the money spent for current periodicals should be from one third to one half of the entire amount devoted to the purchase of books and periodicals. In libraries with

small incomes the proportion of the income spent for periodicals should be greater than in libraries having large incomes. They will find that a given sum of money invested in current periodicals will give more stimulus to advanced, independent work than the expenditure of the same amount for books.

The aim of this paper is to discuss the methods of utilizing periodical literature to the best advantage. In order to realize this aim, we must consider two important phases of the subject, the selection and the care of such literature. Owing to the increase in the number of periodicals during the past few years, the matter of selection is not an easy one. How can we give to the student the most useful material which will also furnish any adequate representation of the work being done in all lines of investigation, is worthy of much thought and consideration. There are few decisions in the management of a library which are more important in their immediate results or more far-reaching in their ultimate consequences. Right here the knowledge which the librarian has of the courses of study and the methods of work will be of the greatest service. It is her duty to see that the choice of serials is such that it will meet the demands of the institution of which she is librarian. That it will be of the greatest possible good to the students both for reference work and as a means of mental recreation and pleasure. A choice once made is not a final one. Some periodicals die and new ones come into existence. Conditions arise necessitating a new selection along certain lines. At all times the librarian should be ready to meet these changes. Time will not permit me to take up separate periodicals and discuss their merits and demerits. Suffice it to say that we should be unceasing in our efforts to, in every way, keep up with this kind of literature, so that we may be able to make the most advantageous selection.

Having made the best possible selection, the next step is their care. In this particular phase of the subject I may touch upon certain points, which to some of you may seem of little importance. In my opinion they are worthy of and need special emphasis. It is the detail part of the library work, often-times tiresome and monotonous, which in the end brings the greatest results. In no other work is system more necessary. As soon as a periodical comes into the library it should be carefully collated and a record of receipt made either on cards or serial blanks. The A. L. A. serial blanks I find very convenient. These should show aside from the title and date of receipt of each number, the call number and state of completeness of library set, frequency, and in case of weeklies, day of issue, number of issues per volume, and of volumes per year, address of publisher, name of agent through whom ordered, regular price, cost, where the title page and index are to be found and date when volume was sent to the binders. The latter may be kept only in the binder's book. From such a record can be answered at a glance every question which is likely to be asked concerning the publication or receipt of any periodical on the list. Subscriptions should, if possible, commence with the fiscal year. Unbound periodicals should be kept in some kind of a case or on a sloping table and newspapers on a rack. Manila or some other kind of covers preserve the attractive outsides, so useful for bulletins and posters, and keep the magazine itself in better condition. From time to time periodicals in daily use should be looked over and the back numbers put away in a case of drawers. A very good method is to put them

in pamphlet boxes, label the boxes and arrange them on the shelves in alphabetical order. Whenever a volume is complete see that its title page and index are with it and then send it to the binder. If this sort of care is given to periodicals the result will be most satisfactory. There will be upon our shelves no incomplete volumes, with title page or index missing, so annoying to the searcher for information, but every volume will be so arranged that its material may be easily and quickly found. As to the binding of periodical literature, the librarian must again decide according to the means at her disposal and the special needs of her library. A good rule for us to follow is that "any magazine worthy the attention of a student in the Normal schools is worthy of preservation in permanent form." I should say: Have as many bound as possible and those that cannot be bound keep in some way such as pamphlet cases, so that they may be gotten at. At least one local newspaper and one of the best state papers should be kept on file. In cases of imperfect sets, these should be filled in at some time. The librarian has little time to spend in looking up the best places to obtain these odd numbers and we Wisconsin librarians may rejoice at the establishment of a "clearing house for magazines" by the Free Library Commission, which will be of great service to us in the future.

A question which arises in the use of periodical literature is how shall it be circulated? No definite rule can be established regarding this. Each library must answer the question for itself. We allow our unbound periodicals to be taken out over night, while the bound ones and unbound pamphlets, reports and works of a similar nature are circulated with the same rules as the books in the library.

It is only within the last twenty years that the vast mine of information found in periodical literature has been opened up to the public. For more than a century men have been giving to the world, in periodicals, the result of their investigations, to be read and enjoyed by their contemporaries, but practically lost to subsequent generations. All of this was changed and the treasures of the most important edition and magazines unlocked, when in 1881, the third and enlarged edition of Poole's index was published. After the appearance of Poole, kindred publications by this and other countries followed, until at the present time we have indexes to almost all literature of this character. The first edition of Poole was supplemented by three volumes covering five years each, ending respectively 1886, 1891 and 1896. Since then the Annual Literary Index gives a yearly index of subjects and authors and serves as a supplement to the Poole supplement. The American Library Association Index, an index to general literature, biographical, historical and literary essays and sketches, reports, publications of boards and societies, dealing with education, health, labor, charities, correction, etc., brought down to date by the Annual Literary index, supplements Poole by referring to publications not strictly classed as periodicals. A form of Poole which will be of great value, especially to the small library, which has comparatively few of the volumes indexed in this publication, is the abridgement of Poole's index in one volume, recently published by Houghton, Mifflin & Co., which contains a complete index to all of the leading popular magazines. It gives all the information that is of value in the complete sets, costs not more than one third as much and can be more easily handled.

The most useful index is the Cumulative, issued monthly by the Cleveland public library. While not indexing as large a number of periodicals as Poole, it is more convenient on account of the frequency of its issue and from its form, which is a complete dictionary catalog. The Review of Reviews has a useful monthly index to current periodical literature, while the Dial's subject index will be found valuable. For juvenile literature we have such indexes as Griswold's index to the first twenty-one volumes of the St. Nicholas, Sargent's Reading for the Young and its supplement, containing indexes to the sets of St. Nicholas, Harper's Young People, and Wide Awake. Too much emphasis cannot be laid on the value of such books as Matson's References for Literary Workers, and Brooking & Ringwalt's Briefs for Debate, both of which furnish references to periodicals. Every library should possess these indexes if it would make its periodical literature most available. It is the general opinion of librarians that more reference work can be done with a complete set of the Century or Harper's with Poole's index, than with twice the number of reference books not periodicals. These indexes will, however be of little value unless the librarian is thoroughly acquainted with them and is able to explain the use of them to the students. In a Normal school a very small per cent. of the students know how to use these indexes, and not only are general talks necessary but much individual work must be done. I know that I am voicing the opinion of all of the librarians of our Normal schools when I say that at least a small part of the regular school hours is due us for library instruction and that it should not be in the form of a general talk to the student body or by asking them to stay after school. Our work should be as much a part of the required work as that of any teacher. Only when this is brought about can the results we wish to see be accomplished. One lesson, if not more, in the course of library instruction, should certainly be on the uses of index-books, as periodical and newspaper indexes, A. L. A. index and supplements, indexes of government publications and catalogs of large libraries. An explanation of such books as Matson's References for Literary Workers and Brooking & Ringwalt's Briefs for Debate, where the pros and cons of different subjects are brought out, should be required. Out of such lessons would grow an appreciation of the library and a desire to use to the full the facilities which it offers.

Time will be saved and help given to the reader if a list is posted near the indexes, giving your sets in one alphabet, the abbreviation followed by the full title and the volumes in the library. If other libraries are near, there should be a list of their periodicals at hand, that use may be made of them.

The indexes unlock this storehouse of wealth, yet students often feel that it would be an advantage if the subject catalog included magazine articles. At any rate it would be profitable to have some of those periodicals not included in the indexes cataloged either in a separate catalog or filed in the main one. Much of this work is already being done by student help in some of our Normal schools. It is an admirable plan, one to be encouraged, which I hope in time will be adopted by us all. Not only is it of benefit to the student in showing him how to make more effective research and how to bring out subject-matter by topics, but it also makes him an efficient helper in the library.

A means of great help in encouraging the reading of magazines and

newspapers and in bringing to the notice of the students various topics of interest is the bulletin board for current topics. Here should be posted a weekly list of the best articles in the newspapers and magazines, lists on points of special interest to the teacher and pictures taken from Harper's Weekly and other magazines to illustrate topics of currenf interest. This will be a source of comfort to the hurried teacher and to the boys and girls.

If time permits an excellent idea is to have systematic courses in newspaper reviewing and selection.

Often in popular magazines or papers which it does not seem worth while to bind, or in stray numbers, there appear articles worthy of preservation. Here again much can be done by student help. Clippings may be made and put into a scrap book or pasted on sheets and after being classified may be placed in the pamphlet boxes holding articles on that subject. Magazines may be taken apart, and whole articles taken out, bound with others on the same subject, or placed in pamphlet boxes. Pictures may also be utilized in a number of ways. Many are the means which a careful and enthusiastic librarian will find to utilize the odd and stray numbers which are to be found in every library.

In addition to the serial publications which properly belong in the reading room for periodicals, every library has a large number of unbound reports, bulletins and other publications of societies or of governmental offices, which unless properly indexed are a constant source of annoyance. Many theories and suggestions have been advanced as to the best methods for the care and use of these pamphlets. It would require as much if not more time than I have already taken to give any adequate discussion of the subject. I will close my paper by giving you briefly the method we have employed at Superior and trust that it may at least be suggestive to you.

All pamphlets are accessioned not in the main accession book, but in a separate one, then classified broadly according to subject. For instance, everything dealing with any phase of sociology we put in 300, giving in place of the author number "pamp." They are then put into the A. L. A. pamphlet boxes, labeled as the books are and placed on the shelves according to classification and author number. Every article of any importance is cataloged on cards under subject, title, if a catch one, and author, if at all well known. These cards are filed in the dictionary catalog, where they are at the service of all. We have found it in every way a very satisfactory method.

LEADER'S REPORT.

FIRST MEETING.

The Library Section was called to order by the chairman, Miss Swan, who called attention to the directions to Leaders of Sections, emphasizing the fact that they must hold to the questions before them in all discussions until the matter is decided. She proposed that any questions on which discussion was desired should be given to the librarians at the close of the meeting, in order that there might be time for consideration. Also, librarians should be ready to discuss their own methods, especially in those matters that differ in the va-

rious schools. It was suggested that a committee be appointed to draw up a resolution and decide what we consider the scope of the librarian's work.

Miss Swan read a paper on "Scope of librarian"s work in the Normal school."

It was agreed by all present that Miss Swan had covered by her five points all that should be included in the scope of a librarian's work in a Normal school.

Miss Simpson called attention to the statement that the repeated calls for help that are occurring every day in the library may become so burdensome that the librarian cannot undertake them. "Shall she give up her cataloging to help students? Do I understand that you would consider the help to the student the stronger point."

Miss Swan replied that conditions would limit it. If it is a new student who has not had any opportunity to do anything in the library for himself, "I should, if possible, leave my work and help him; but if it is a student that I can merely by a word help out, I would tell him a word, but I would train my students so that they would not come to me for things that they could do for themselves."

Miss Simpson asked if "members of the faculty depend on you for the use of books? If you spend a good bit of time on cataloging each book as it comes to the library and bring it out in all different headings, why cannot the members of the faculty who are going to prepare lessons come in and use the catalog?"

Miss Swan replied that they could.

Miss Simpson asked if she preferred to have them come to her, to consulting the catalog?

Miss Swan replied that she must know how many books are to be used, and what the books are. "The teacher cannot depend on me for his class to get the recitation for the next day if there are but two books in the library and without saying anything to me those two books are drawn. I must know what material there is in the library myself. It would seem to me that the librarian was the one to come to for that material rather than to use the catalog. She must know how much material there is in the library in order to guard against books going out that should not go out until night."

Miss Carpenter asked how she provided for that. "If it was generally understood that they are to come to you and give you a list of the books that they want, or do they let it go?"

Miss Swan replied that teachers differed about it. Many of the teachers come in and pick out the books themeslves, and being on the reserve shelf, she knew the books were to be reserved.

Most of those present admitted that they had more or less difficulty in securing the coöperation of teachers in this particular.

Question was asked as to how many of the librarians, if those books were taken out without their knowledge of the teacher's reference to them, found out who had them. All agreed that they found the books. Effort should be made to have that happen just as few times as possible.

Miss Parmele and others had found in their work that frequently students come to them saying that such a teacher has referred us to such a book, and ask if that book ought not to be reserved. She and others reported that they have less trouble than formerly in that respect.

Miss McNeil called attention to the statement made that students frequently leave or complete their course without having acquired the habit of book research, and asked if there were many who failed to acquire that habit to a greater or less extent.

It was answered that many persons and teachers go through life without that critical analysis of that which comes before them; not seeing things vividly, not understanding accurately nor clearly many things that come to them in their reading; that it is natural inclination which has much to do with it. "Of course we do not send out many students that have not improved in that respect. The school course and the librarians together do much for them, but all have not an equal desire. There are some people who go out from the school who are not as proficient, or do not enjoy book research as much as some others do when they come there. Some do not have the kindly attitude toward book research that we could wish."

Miss Simpson suggested that Miss Swan should be made chairman of the committee to formulate the resolutions to be adopted, and that all should help. The meeting was appointed for Wednesday night.

Miss Parmele then read a paper entitled, "What assistance can the librarians give to the heads of departments to facilitate use of reference library by students in the special work of each department?"

Miss Swan agreed heartily with what Miss Parmele said in regard to cataloging and subject headings. Miss Carpenter asked if there was not an advantage in following as far as possible some system of headings, e. g., the A. L. A. headings. Of course many changes have to be made in a Normal school library, but why not fit students when they go out from the Normal schools to be accustomed to these headings rather than for each librarian to make up a system of her own. It saves time on "see also references."

Miss Parmele replied that she uses "see references" extensively from all possible headings which are suggested. "I am guided in my choice of main headings by the text-books and by the various printed syllabi, some of which have been used in the school for years. I try to get the point of view and to put myself in the teacher's place as far as possible."

It was not thought possible to make a well-rounded catalog without something to guide.

Miss Swan remarked that the A. L. A. headings were made for the general library, but were specific enough along some lines for use in a Normal school library.

Others were of the opinion that if you change for one teacher another may want different changes. You have got to go by that once in mind.

It was thought by all that many headings must be added to those given in the A. L. A. but that it served as a good basis.

Miss McNeil was not in favor of using the headings the teachers use. She had found in her experience that every teacher uses a little different mode of expression, and when one teacher leaves a school and a new one comes to take up the work, he will not use the same headings and the work will have to be done over.

Miss Parmele said that she followed not so much the teacher's wording as that of the text-book. She tried to use a heading that the text-book itself would suggest, or the teacher would suggest, where it was possible, and just as well as to use the A. L. A.

Miss McNeil thought the librarian should decide the heading, and modify the heading the teacher may suggest, because she is trained to it, and her judgment would be better than the teacher's.

Miss Swan said her practice is to put in "see references" for the teacher's headings, and then use the headings that seem to her best, and most fitting. She never asks a teacher for the heading, but for the subjects that teacher wants brought out, and if she gives different names than Miss Swan wants, she is very careful to give the "see references" and then put in her subject heading.

Many of the pedagogical terms used are not found in the A. L. A.

Miss Simpson asked if others have any experience with students using the catalog, and then saying that they cannot find any book on such a subject. If a student has looked under a simple heading, would it be advisable to make a subject heading under that heading, or make a "see reference" card, which would relieve the difficulty.

Miss Parmele's plan of classifying the book according to the teacher's wish was again referred to.

Miss Simpson stated her practice to be to consult the teacher, if she knew he wished the book in a different place, and if she found the book was going to be more useful, and she had no good reason for not putting it there, she classified it where the teacher wanted it.

A discussion then arose as to the disposition of books on education in the various libraries. In some, all works on psychology were put with the books on education, no distinction being made between those that would go under philosophy and those that would go under education. In others, a closer classification was made, it being considered better to keep them apart.

The attitude of teachers toward the library was discussed. Some indifference and lack of coöperation on the part of teachers has been met with, and suggestions as to how to meet this, and to what length the librarian should go in such cases, were offered. It was suggested that some teachers had not reached the point where they were in sympathy with library methods of study, but were still following text-books instead of doing reference work.

Another librarian suggested that the feeling among science teachers that students were using books to the exclusion of the facts they ought to discover for themselves led them to oppose the using of books; but that teachers of geography, history, and literature should have only the friendliest attitude toward the library.

It was also thought the point Mr. Harvey is urging, that the teacher should teach more and lecture less, will help this difficulty, and will do away with a great deal of the lack of use of books with some teachers.

Miss Gardner followed this discussion with her paper on "What work can librarians do in assisting students to use the reference library economically and intelligently?"

The points brought up for discussion were the methods followed by the different librarians, in order to make themselves closely acquainted with the work of the various teachers; the amount of time it was advisable for the librarian to give to each individual teacher; how much assistance she should render the teacher in making reading lists for students.

It was the opinion of the majority that if they wished to encourage

the teachers to coöperate with them, and make as much as possible of the library, it should be the librarian's work to get the reading lists in shape for use. If she has any students able to assist her in this work, she could, if crowded, let them do some of this work.

Part of the work given in one of the Normal schools is to train students in the use of the library.

The advisability of reserve shelves for books was next discussed. It seemed to be the general opinion that the plan was a drawback to students learning to find books where they belonged. Also that students confined their reading to the books reserved, thought there was nothing except those books on the subject, and that it hindered the use of the library.

At this point Supt. Harvey came into the meeting. He asked how many of the librarians had opportunity to give specific instructions to incoming students on the use of the library. Five answered in the affirmative.

He said, "Why not give a specific recommendation to the proper authorities that this should be done? If we are to have libraries, and pay librarians, and then refuse an opportunity to teach the people how to use the tools, it seems perfectly absurd."

To those who had no time set apart, he suggested taking one class period per week to teach students the library, which he did not think would seriously harm the other work.

Miss Simpson outlined the plan followed at Stevens Point last year, of taking 20 or 30 students at their vacant period, and instructing them in the use of the library. The drawback to this plan was the inequality of the students thus brought together, some of whom might be preparatory students, and others seniors, who already understood the use of the catalog.

Supt. Harvey said that there was no reason why this work should not be organized and systematized the same as other work, and whenever a class of students come into school, the librarians ought to have the opportunity to train them until they can use the library.

Miss Swan stated her former plan of announcing that Wednesday was the day that she devoted to teaching any students who wanted to know how to use the catalog or to find anything in the library. For two years past this has not been done. It is not needed since all students do systematic library work.

Mr. Harvey thought it a wasteful way, because she gave 40 days in the year to what she ought to do in 10.

He said his only contention was that this work ought to be recognized, and some provision ought to be made so that librarians have time to give specific instructions to students on the use of the libraries in their schools

Miss McNeil was then called on for her paper "Should the librarian instruct students in library methods? If so, for what purpose, and to what extent?"

Between 25 and 30 of the students in the Milwaukee school last year chose the course in library instruction outlined by Miss McNeil, in lieu of library readings. Those students chose it who felt that they needed it,—those going out into high schools, or into district schools, and the work was limited to the books in the township library list.

In Whitewater the work is compulsory with the senior class. They do classifying and catloging of books, each student giving one hour each quarter to this work from the time he enters school until he leaves.

Discussion followed as to practicability of giving this work to all students; the attitude of the students toward the work; and the methods adopted as to returning books to the shelves. There was quite a difference of opinion regrading the last matter, some librarians reporting their students to be very accurate in this work, while others found them very careless.

Questions of interest were asked for.

Miss Parmele inquired as to the hours taken by librarians who give lectures; whether students were compelled to go; whether the maximum amount of work recommended by the Board is required of the students in all the schools. The students in the Oshkosh school are doing the maximum work, and the feeling is that we have no right to compel students to come after school hours, when we are already requiring the maximum. The attendance was not full at the lectures when the plan was tried. Question could not be answered until Presidents were consulted as to amount of work. Report would be made the next day.

A copy of Miss McNeil's paper was asked for by each librarian.

SECOND MEETING.

Meeting called to order and Miss Carpenter's paper on "Methods of utilizing periodical literature to the best advantage" was read.

Their method of treatment of pamphlets was described by the other librarians. The principal point of difference brought out was in the method of classifying. A majority favored a close classification, such as would be used for books.

The matter of coöperative work in the several schools in indexing periodicals not now indexed, was discussed at length. Some were heartily in favor, others thought that if the work were done for the needs of their own schools, it might be of little value to some other schools. Reached conclusion to each choose some periodical she would be willing to undertake to index, and name choice to Miss Swan, naming second choice in case that one were taken. Then questions as to character of subject headings came up. Some wanted specific headings, some general headings. It was suggested that a committee be appointed to make out list of subject headings for general agreement as to what should be used. It was thought that might be a good plan, but it was also thought that one teacher could adapt the headings made by another to her own catalog.

Miss Simpson followed with her paper on "Preparation and use of pictures."

This was followed by an account of the handling of pictures in other schools. In Milwaukee the collection was large, well mounted, classified and cataloged, and was found of much use and value in the work.

Oshkosh has a large collection, but it is under the charge of the supervisor of practice, and is entirely independent of the librarian's charge. It is at the librarian's disposal for library use and it may be used by teachers not in the model school. The librarian con-

tributes a considerable amount of material. The library has a fair collection of portraits.

River Falls had a collection with which they made bulletins for special days, and had found them very useful in the grades, and also of interest to Normal students.

The saving of reading material and mounting of same on the back of pictures was approved by all.

The librarians were invited to look over the Oshkosh collection and examine the case.

Miss Silliman's paper on the subject, "To what extent and in what way can printed lists of books and references be made most valuable, not only in individual schools but by a system of exchange in all the schools?" was read.

She exhibited two lists of references prepared by teachers in the River Falls school, one on history and one on art.

Miss Carpenter and others expressed themselves in favor of the exchange of reference lists, on any subject. Of course lists prepared by some teachers would be more valuable than others. It was thought these lists could be prepared by each librarian as extensively as she desired, with reference to what is needed in her school, and then if it is of any use to others, to pass it on. It was thought unlikely that many lists would come that had not valuable material.

A teacher could take these lists and select just what he wanted, could check in some way the books that are now in the library, and mark the best in the list.

Another point was made that some bibliographies were so complete they were not practical. The short selected list was thought by some better to put in the hands of students than the list from which he does not know what to select. That the list he needed was a compact one of the best references so that he need not waste time in looking up matter.

Also that the best references ought to be in the catalog.

In the Oshkosh school these reading lists are mostly compiled by members of the faculty and printed in the syllabi furnished to the students. The demand is mostly for short reading lists wanted at once for essays, etc.

It was thought a good plan for the two schools which have this printed matter (Milwaukee and Oshkosh) to send to each of the other schools copies of these printed lists and syllabi, if possible to do so.

Report was made in answer to Miss Parmele's question of Tuesday, as to amount of work required in the various schools. Miss Swan had consulted her President and learned that the maximum amount of work was practically required. Library lectures were not given at Whitewater, except to the student body. The first day of school she has new students come into the library and she gives them instructions.

At Platteville the work is done during school hours in the pupils' free periods, except at the beginning of the term when the new students come.

At Superior the maximum amount of work is required. There is no time during the day for lectures. They are given after school, are about half an hour in length, and students respond very well indeed to the call.

At River Falls the new students as they come in are given a half hour talk after school, outside the library, and then are taken to the library to be shown the location.

Miss Silliman thought Mr. Harvey's plan of devoting a class period to a lecture in the library would be better.

At Milwaukee the juniors are excused from 8 o'clock classes to be instructed in use of library. Then as new students come in, and the librarian has opportunity, she takes them together or individually later on in the year.

Reference was made to Miss Gardner's paper, and the order in which she took up the various steps of the instruction was discussed.

The following order suggested by Miss Simpson,—

Classification and arrangement of library;

Explanation of the catalog;

Periodical literature and use of indexes; met the approval of Misses Carpenter and Parmele.

At Superior, River Falls, and Whitewater general talks to the school are given two or three times a year.

It was not thought necessary to say anything about the exhibits, as each one had an opportunity to examine them thoroughly.

Miss McNeil asked for an expression of opinion from others of the work in cutting up pamphlets and periodicals practiced in Milwaukee.

It was not thought that it worked well at Whitweater to cut up material in magazines indexed by Poole and Cumulative Index, because they were used so much.

At Oshkosh duplicate magazines are furnished several departments which they are at liberty to clip.

It was not thought it could be done at Stevens Point, or River Falls, or Superior now.

At Milwaukee some of this work is done by students who have taken the library work with librarian.

The cost of binding these clippings separately is about ½ cent each.

SUMMARY.

The seven Wisconsin Normal school librarians agree concerning the following:

A. Purpose.

1. To give to every person connected with the institution such judicious aid as will tend towards his advancement.

2. To help fit the student of the Normal department for his work in Wisconsin schools.

B. Scope.

For the individual we may do three distinct things:

1. We may give direct help by putting into the hands of the inquirer the material he needs.

2. We may teach him how to know for himself what book he wants, how to find it easily and quickly, how to get at once the right page and how to see at a glance the very lines wanted.

3. We may assist in fixing those habits and in cultivating those tastes that will insure *growth* in culture, in ability and in usefulness.

For the coming teacher we may do two distinct things:

1. Help, with others. to foster his professional spirit.

2. Train him for utilizing his school and other libraries, that he may lead his pupils to use and to enjoy good books.

C. Conclusions.

1. A spirit of cordial coöperation and mutual helpfulness should exist between teachers and librarians, inasmuch as such united effort alone can make the library of the greatest possible good to all connected with the school.

2. The methods of cataloging and classifying in a Normal school library differ from those employed in a general library owing to the necessarily one-sided growth of a library strongly pedagogical and to the special demands made upon it; so it must be somewhat adapted to the general outline of work done in the classes.

3. Under present conditions we can so assist the future teachers of the state that they may appreciate the value of a library, be familiar with the best reference books and periodicals and know how to use school library to some advantage.

4. As periodical literature is of great value in reference work, a large number of judiciously selected periodicals should be secured for this purpose as many as possible should be kept in some permanent form. Students should be taught to use indexes to this literature.

We also adopted the following resolutions:

1. Believing that the various reference lists and syllabi which have been compiled by the teachers or the librarian of any one Normal school would be of material benefit to librarian, teachers and students of each of the sister schools, we most earnestly recommend that a strong effort be made to secure all such lists and syllabi, have them printed and distributed among the schools.

Believing that through coöperation greater results are always reached, we further recommend that each librarian making out brief reference sheets or reading lists, send copies of them to other schools.

2. As a course in library methods is necessary to the complete equipment of the trained teacher and as the present course of study allows the librarian no time in which to give that instruction;

Therefore we earnestly request that such instruction be made a part of the school course and a requirement for graduation.

L. P. SWAN.

LITERATURE, INCLUDING LIBRARY.

Leader, H. A. ADRIAN, River Falls.

WHAT SHOULD BE DONE IN THE NORMAL SCHOOL TO MAKE TEACHERS ACQUAINTED WITH THE LITERATURE OF THE PUBLIC SCHOOL LIBRARIES—WITH METHODS OF USING THIS LITERATURE IN THE PUBLIC SCHOOL?

ELLEN F. P. PEAKE, Oshkosh.

In this paper I have interpreted "literature of the public school libraries" to mean those books in school libraries which are generally used for collateral and supplementary reading.

I have also limited the discussion to books and methods, eliminating the questions of general culture, and psychological adaptability, both of which are potent factors in the use of school libraries.

Last spring a Supt. of Schools in the southern part of the state remarked that the capital expended in the purchase of books for an unusually fine library in connection with the high school in his city, was bearing no interest for lack of a teacher with the time and equipment necessary to use the books to advantage.

His literature teacher, though successful in her special line, had not that general knowledge of books required for an economical and extensive use of a school library.

What is true of one high school is no doubt true of more, and perhaps equally true of the lower grades, as well as of the ungraded schools in the country.

In consideration of the fact that the state demands that a special portion of the state school fund income shall be used in each school district for the maintenance of a school library, it seems only just that the districts should demand that at the state institutions where their teachers are trained, such equipment should be given as shall insure to the districts a wise use of the books placed in these libraries.

The question before us is—Of what shall this equipment consist and how shall it be secured?

In regard to equipment, I think the state has a right to expect the graduates from her Normal schools should be able to use wisely a majority of the books likely to be found in the school libraries.

In addition to a general knowledge of a majority of these books, he should have an accurate, particular knowledge of a smaller number of books suited to some special grade or to some special line of work.

Further, he should have acquired such discrimination in the choice of reading matter for children that he can direct or assist officers in selecting from the State Superintendent's list books best suited to the needs of the particular school of which he has charge.

In regard to the method by which he shall acquire this knowledge, I should like to outline the plan now in operation in this school, that it may serve as a basis upon which to found further discussion.

Collateral and supplementary reading is considered under seven heads: 1. Geography and Travel; 2. History and Biography; 3. Nature Reading; 4. Mythology; 5. Fiction; 6. Poetry; 7. Essays.

Of these, the first three are collateral, the last four supplementary. Each of these departments holds weekly sessions, and all are in operation every quarter.

Elementary students, unless excused upon examination, are required to do work in each of these departments. With the exception of an occasional irregular program, no student is supposed to take work in more than one department in any one quarter. Thus it takes the average student seven quarters to complete the course.

To illustrate: A student entering the first year, unless a better correlation could be made, would be scheduled for the first quarter's work,—Geography and Travel. With the assistance of the director he will select from a prepared list books for the quarter's reading. At the weekly meetings these books will be reported on

before the class, and discussed in respect to interest, subject-matter, and general value.

Each quarter, in addition to the books read and reported, the student examines and selects from the library ten books which in his estimation are fitted to the use of some special grade. For example, in the first quarter he might be asked to select ten books for use in the Upper Form in connection with the geography of North America.

If time allow, these lists are discussed in class, otherwise they are submitted to the director who, when necessary, talks them over with the individual student.

In the four departments of supplementary reading a slightly different method is pursued. The first two or three sessions are devoted to an informal discussion of some one masterpiece that has been read by all the class. The rest of the quarter is given to individual reports in which the student is expected to note the essentials emphasized in the class discussion.

Hence, by the time the elementary student has completed the course he has read and reported at least fourteen books, he has heard reported, and has helped discuss two hundred more, and has personally examined and selected seventy books suited to the grade he expects to teach, giving him a total of two hundred and eighty-four books.

High school graduates are required to take work in not more than three departments which are determined by the equipment received in the high school.

In the senior class, one tenth of the time assigned to literature is devoted to the consideration of supplementary reading.

With the exception of daily sessions, which afford more time for class discussion, the method is similar to that of the library reading classes. The lists made in the elementary classes are supplemented and questions of method are more fully discussed.

In discussing methods to be employed in the public schools, the plan in use in the Normal school is examined and the student is required to suggest such modifications of the plan as seem to him necessary for adaptation in rural schools, in grade schools, in high schools.

Discrimination in the assignment of books and the uses and dangers of correlation are considered.

The influence of a book depends largely upon the spirit in which it is read, and the relation it bears to the interests and ideals of the reader.

The subject matter of supplementary reading may be utilized in language work throughout the grades, from the oral reproduction of the first primary to the finished composition of the high school.

Stories of travel, of natural history, of children and people of other lands, naturally group themselves about geography, as do biographies and historical novels about history.

Four recitations a week from the text-book and the fifth period devoted to a spirited discussion of a book in close connection with the subject, may be more fruitful of good results than five formal recitations a week.

The report may be oral or written as may seem best in the teacher's

discretion. If the latter, its preparation might be substituted for part of the week's regular requirement in written work.

In all the classes this fact is emphasized, that from the beginning only great and noble ideals are to be set before the child.

The childlike is always ennobling, the childish never.

SHOULD THE WORK IN LITERATURE IN THE NORMAL SCHOOLS AIM TO DEVELOP THE READING HABIT AND A LOVE FOR GOOD LITERATURE, AS WELL AS A METHOD OF STUDYING AND TEACHING LITERATURE; AND IF SO, WHAT EFFECT WILL THIS REQUIREMENT HAVE UPON THE PLAN AND METHOD OF WORK IN LITERATURE ADOPTED BY THE TEACHER OF THAT SUBJECT IN THE NORMAL SCHOOL?

ALBERT HARDY, Platteville.

The question implies that there may be two aims in teaching literature and consequently two methods. One aim, the first and most important, is "to develop the reading habit and a love for good literature;" the second aim is to teach a "method of studying and teaching literature."

I think it may be safely said that the right method of studying and teaching literature will tend "to develop the reading habit and a love for good literature;" that, while there may be two aims in teaching literature, viz.: 1. To appreciate and enjoy; 2. To estimate and judge; it does not necessarily follow that there can be two distinct methods, but rather two phases of one method.

To develop a love for good literature and the reading habit is the highest and most important service a teacher of literature can render his pupil; for the highest function of literature is an appeal to the highest in man, an appeal to his spiritual nature, which includes "the whole dominion of the emotional, the susceptible or impressible, the sympathetic, the intuitive; in short, the absolute in man,—that by and through which man holds relationship with the essential spirit of things." It also aims toward knowledge,—"A knowledge which is matter of spiritual consciousness and which the intellect cannot translate into a judgment."

If, then, the highest aim of literature is to appeal to the emotional, the sense of beauty, the sympathetic, the ideal, a method of study that shall absorb all the attention and soul-power in matters purely linguistic, textual, in questions of grammar and rhetoric, etc., will prevent the appreciation of the work as literature; consequently there can be no enjoyment and love of the work. As Professor Carson says: The assimilation of a piece of literature is a spiritual process and "induces soul-states or conditions, soul-attitudes to attune the mind-forces to idealized forms of nature and human life produced by art." These things are discovered by spiritual insight through the aid of the interpretative and associative imagination, not through the discursive understanding.

The first duty, then, of the teacher of literature is to lead the pupils to feel, to enjoy, or better perhaps to permit them to feel, to enjoy; the second function of the teacher is to teach them to estimate, to judge.

To feel, to enjoy good literature is a synthetic process; to estimate, to judge, is an analytic process. The first reading of a masterpiece will be quite rapid, giving only enough attention to textual explanation to enable the pupils to interpret the meaning and to grasp the purpose and unity of the piece. The teacher does not impertinently intrude himself between the soul-content of the piece and the soul of the pupil; but so far as possible leaves them face to face, giving questions, suggestions only when needed to grasp the larger meanings.

These principles should guide in the plan and method of teaching literature to develop a love for good literature and a habit of reading.

The best literature must itself be read and read more abundantly, not books about literature. The greatest, the best, the most vital books must be selected, and those at first that are near the interests of the pupils and are most easily comprehended by them. Individual tastes are to be consulted as far as possible.

There should be as much reading aloud in class as possible by the best readers. Voice interpretation will be the best possible test of the pupil's understanding and appreciation. The teacher must read much. It goes without saying that he can read so as to interpret and give force and beauty to the thought. While the reading in class is going on, especially as the pupils gain insight and power of interpretation with practice, there should be much individual reading by the members of the class outside of regular class-work. The tastes and interests of individuals should be consulted, and the pupils should have great freedom in selecting books to read. At first, oral reports only should be made on the books read, the reports covering only a few vital points; as, the general purpose and meaning of the work, the characters and the motives and forces moving them to action, the development of the plot, the truth and beauty of the work, the pupils' enjoyment and the reasons of the enjoyment.

The oral reports on books read outside of class will be a partial preparation for the second aim in the study of literature, to estimate, to judge; in other words, this aim will show to some extent what main qualities to look for and admire in works accepted as part of the literary heritage of mankind, and to look for in new works. This requires a more intensive, or critical reading and analytic method of study.

The analytic or critical method will put the pupils in possession of the fundamental qualities of all good literature. One critic calls these truth, symmetry and idealization. Another critic names them as follows: The Intellectual Element, the Emotional Element, Imagination, and the Formative Element.

All great literature must possess the intellectual element, the element of truth, that which is eternal and universal, truth to nature and to man. Another fundamental quality of literature is that it shall appeal to the emotions. This quality especially makes it enjoyable. Dr. Henry Van Dyke says, "Poetry is, in truth, the prophetic art. It is an art because its first object is to give pleasure through the perfection of form. Without delight it is a vain thing. The world will never really care for it. It is the prophetic art, because its highest object is to convey to the mind of man a message that shall lift him above himself and make him not only happier but better. After all,

the most perfect pleasure is that which accompanies the purification of the heart through pity and fear and love." It must have imagination, because it is through the transforming power of the imagination that its truth is made beautiful. It must have perfection of form, as this is its main element of beauty. It is form that adapts it to its purpose.

A critical analytical method of the study of literature will put the pupil in possession of the power to estimate, to judge, to discern those qualities of literature that make it literature. This method of study is laborious and slow; it is intensive. A few pieces, the highest and best, or parts of pieces, must be studied in this way, if the pupil is put into possession of the power to estimate what is good literature. But it has been well said that whatever intellectual analysis is applied, it must be based on what has first been felt to be the molding spirit. Through this final analytic process the details of language and structure must be shown to be such as they are by the forming idea of the whole. The details of analysis must again through synthesis grow into an organic life-like whole. In other words it is the life giving purpose, the informing spirit of the work, the creatve imagination, that transforms and molds the diction, the structure, the figures of speech, all the rhetorical qualities of a great work of literature, and these details can be understood and mastered, can only be seen in their true relation and meaning, after the work has been read and enjoyed as a whole.

One point, and an important one, in planning a course in literature for a Normal school, (and a point on which I am not settled), is whether one should follow the historical order in selecting works for a class to read; or to begin with what is near in time and interest, with the literature of the present, and, as it were, work backward to the earlier literature.

Each plan has good reasons in its favor. In favor of the former plan is the fact that literature is an evolution, a development, a growth from certain primitive forces, and that any great book of an epoch can be fully felt and known only in the light of the hereditary forces and influences that have helped to shape it. Or, as one writer well puts it:

"Literature is the brain of humanity. Just as in the individual the brain preserves a record of his previous sensations, of his experience and of his acquired knowledge, and it is the light of this record that he interprets every fresh sensation and experience; so the race at large has a record of its past in literature, and it is in the light of this record alone that its present conditions and circumstances can be understood."

In favor of the latter method is the argument that the young should begin the study of the easily understood and with that which has for them a living interest. This argument certainly holds good for the quite young. Does it for the students in literature in our Normal schools?

DISCUSSION.

ANNA M. COTTRELL, Whitewater.

The paper just read emphasizes the fact that the work in literature in the Normal schools should aim to develop the reading habit and a love for good literature. It holds, and rightly, that the highest purpose of this study has to do with general literary culture, the development of the literary taste, and the acquisition of the power to read good books intelligently after school days are done; also, that the method employed should have this purpose in view.

We all know that the actual amount of solid learning acquired by even the best pupils in our schools, in a twenty weeks' course in literature, is really very small; and that to attain to anything in anyway satisfactory in the study, it must be expected that a vast amount of work will be subsequently added. It is evident that all that can be done in so short a course is to lay foundations.

When, year after year, we come into contact with large numbers of young people who have developed little or no appreciation of books, it is with a keen sense of responsibility that we inquire how this cultivation can be accomplished. Morgan says in his psychology,—"What the teacher of literature has to do is to educate the appreciation, leading it on step by step in its upward development. He must remember, too, that his aim is to minister to all-round mental development." That view, then, which found expression in the paper to the effect that "the teacher should permit the pupils to feel and to enjoy," I think would better be should lead the pupils to feel and to enjoy.

Right here I wish to re-inforce the thought set forth in the paper with reference to intensive work in judging and estimating literature. But should intensive work be omitted in leading the pupil "to feel and to enjoy?" "This ought ye to have done and not to have left the other undone." "He who would understand the message must understand the conventions by which it is expressed." The need, then, of interpretation of thought by means of language is imperative. Not to know the meaning of words, not to know the forms of construction, and not to know figures of speech, result in careless habits of reading, self-deception, and false conceptions of the author's meaning.

I can see how it is possible to get results in the details of the study and still find that the pupil has mistaken the means for the end and has failed to get beyond the mechanism to the soul, to that which after all makes it of value. Here is great need of careful direction on the part of the teacher. He must ever bear in mind that the so-called laboratory work in the study of literature should always be kept above the task-work level. In studying any work of art there is aways danger of excessive critical analysis, but is not even an excess at the beginning better than to place the whole subject practically outside of the modifying influence of the school, relegating it to each individual pupil?

It is generally acknowledged that what is read must be enjoyed; but before a great literary production can be enjoyed, before its spirit can fill the spirit of the reader, it must be understood. So the teacher of literature makes haste slowly. (In this discussion I do not include library readings.) Ruskin says: "If you read ten pages of a good book with real accuracy you are forevermore in some measure an

educated person," and Dowden, that in teaching a great work of a great author, he would approach the piece from every side; study it in its language, its form, its style, its thought. Another aptly says:—"All aids are only instrumental to our close and loving companionship with authors who will make our lives more agreeable, more thoughtful and more sympathetic." I quote again from Morgan:—"By all means let us render assistance in the apprehension and comprehension of that which another has written. In this we cannot be too thorough."

This leads me to call attention to the fact that literature has a language distinct from the language of ordinary daily speech, and that if one is to enjoy literature he must know its language. If our pupils are rightly helped to look for the meaning of allusions, for the value of imagery; to look beyond the suggestion to what is suggested; to read between the lines and find what is implied but not said, in time they may so cultivate "the interpretative and associative imagination" as to make it of perpetual service.

Again, that the learner may the more completely feel and enjoy, the teacher should help him to an appreciation of literary excellence in all its phases,—the beautiful, the sublime, the pathetic, the tender, the broadly human,—to all these the attention should be called again and again. Through such study, some of our pupils who have lived narrow lives, whose pleasures have been commonplace, are led into broader ways of thinking, to higher interests, and more ennobling pleasures. It is when a teacher has so guided a pupil that he can read with a mind so receptive as almost to be creative, that he can trust to the impressions made on his heart and say with confidence: "Now let it work. Take what course thou wilt."

Such a plan means much more than the mere reading of books. It tends more directly toward developing an appreciation for literature than forming the reading habit; but one of the greatest hindrances in developing the reading habit in our limited course is that, as a rule, we must first create a taste for good literature. While doing this, however, there must come many opportunities for finding new fields of literature in which the pupil will love to dwell, and in which he will take the greater delight because he has discovered them for himself.

After all is it not in indirect ways that the true reading habit is formed? The special teacher of literature cannot possibly bear the sole responsibility for the development of the reading habit. All teachers in all departments of the Normal school have a duty in this very necessary work. A literary atmosphere should pervade the school; much depends on this. Much may be done through the constant use of library books and the better periodicals in connection with other school work. The habit of handling books, of using books, needs cultivation. Masterpieces should be correlated with other subjects. Through this means pupils are often awakened to the fact that to comprehend some masterpieces it is necessary to know a great many things. Again, more satisfactory results are brought about through enlisting our pupils in each department of English work, thus giving a trend to the mind that will remain through life.

The paper asks whether in planning a course in literature for a Normal school, one should follow the historical order in selecting works for a class to read, or begin with what is near in time, and interest,—with the literature of the present and move backward. A vital aim in

teaching literature should be chiefly "to inculcate reverence for the great writers and a taste that should choose them in preference to the ephemeral writings of the day." Today's interests are sure of attention. The present speaks for itself all too loudly. The newest book insists on being read. The literature of the present, then, can be neglected in the literature teaching. Moreover, it should be till our pupils in the Normal schools are able in a measure to see that there is no influence in the school curriculum more directly and exactly fitted to uplift young souls than contact with old literature.

Again, it is due our young people that they should be led to see that in the old masterpieces are "the verdicts upon life which have been most generally approved by the wisest men who have lived; they have been tested not by the experiences of one generation only, but by suceeeding generations." It is from them they learn to discriminate the essential from the incidental. Moreover, if the course in literature begins with the latest and moves backward in time the pupil misses the childhood, the youth, the growth of literary art.

Again, that the great masters may be the better appreciated, it is well in the study of literature to make constant reference to the development of the national life and spirit as recorded in history.

The paper says:—"The best literature must itself be read and not books about literature." All admit that the only way to know an author is through the sympathetic reading of his works. But criticism which is the sympathetic relationship and consequent insight may serve to induce in the reader the right attitude demanded for the best response to him.

Nor is it well to neglect altogether the life of the author. Hundreds of lovers of literature visit the lands of Scott and Wordsworth every year, and love their writings all the more because of the broader knowledge of the vital facts in the lives of these authors. Here again wise direction as to what to read and what to omit is necessary.

I agree with the paper that training through voice interpretation is excellent training; but I would ask if this training should be limited to the best readers. Rather let all be judged through this means, both as to their power to understand and to appreciate. There should be some days when the recitation period should have nothing about it of the nature of a recitation, days when all read, the teacher included. On these days the teacher may see many signs of the growing of the seed she has planted; at the same time she will discover where there is no depth of earth, and where the seeds need to be worked in that they may take root and grow.

I often think if we could teach literature without having examinations more could be accomplished; for precisely that for which we teach literature is that which will bear no examination. The true test is not made by question and answer. Beyond and above the intellectual development, the elevating of the taste, and the formation of the reading habit, lies the slow-coming results of growth of character and purity of heart.

Finally, if the study of literature is to be practical, it must, seemingly, be slow. The teacher must be a leader. There must be definiteness of aim. For the majority of pupils in our Normal schools it is wisdom to read a few authors, comparatively speaking, read the best, read their great things and dwell upon them. In this way, the teacher

may, as the work advances, make herself less and less necessary; the pupil will be prepared for a larger realization of the rapid or cursory method of reading, and the extensive method will more safely have the major place in subsequent reading.

LIBRARY READING; ITS PLACE IN THE NORMAL SCHOOL; ITS RELATION TO THE REGULAR WORK IN LITERATURE; TO THE WORK IN OTHER BRANCHES. ITS PLACE IN THE MODEL SCHOOL; PLAN OF ORGANIZATION AND ADMINISTRATION.

FANNIE J. HOLCOMBE, Milwaukee.

"The place of literature in our common school education is in spiritualizing life, letting light into the mind, inspiring and feeding the higher forces of human nature."

This is the truth which those who believe in library reading are trying to make prevail. Prof. James says we should as early as possible fix as many good habits as possible, for in youth the nervous system is more plastic and more nutrition is supplied than there is waste. Library reading has one distinct aim, viz.: the formation of the habit of reading good books. In this is implied the training in getting the contents readly from a book, a knowledge of the best books, an intimate acquaintance with the library, the ability to judge the merits of a book according to fixed standards and the love for reading.

The aim carries with it the method. If a habit of reading is to be formed, then many books must be read; to get at the contents of a book readily the student must have practice in many lines. Before he can judge the merits of a book and appreciate the clearness of statement, weight of argument, vivid description, and elegance of style, he must have read enough so that the criticism may come from his own reading and ability to compare. The love for reading comes only with reading in those lines in which there is a present interest and then "the appetite grows with that on which it feeds."

In the regular work in literature classes the students should be taught to read books of literary value. And in accord with our aim in library reading they choose for themselves from the lists given to them in Poetry, Fiction, and Essays. Since literature is the "interpretation of life" the books of the last fifty years are chosen for the basis of literature training lest the pupil forget that literature and life are interdependent. The study of the earlier English literature follows the study of the modern, after the connection between literature and life has been established.

We have too long turned our eyes to the past for literature, forgetting that in the Elizabethan age Shakespeare was writing modern literature, that when Charles Lamb wrote his humorous essays of Elia his fellows saw little hint of the lasting qualities of his essays, that at one time even Homer—one man of many—sang his lays for the ears of his contemporaries. Too long in our schools we have called only that literature which has stood the test of years and have ignored that which has been more recently written which thrills with the thought and enthusiasm and life blood of the age in which we live.

As a consequence of this the literature taught in school has often taken its place in the pupil's mind along with trigonometry, algebra, chemistry as a study which has a knowledge value but no effect upon everyday life. In our work in Milwaukee we believe in putting modern literature first before the student and through his reading and discussion of this, teaching him to recognize the good in literary lines, who the best wrĭters are, what they have written, what phases of life they show, etc. In these classes in modern literature the library reading method is carried on insomuch as the students study no text-book and read the poetry, novels, and essays drawn from the library shelves. Each pupil is pursuing a course of study different from that of any other member of the class. They are kept together on one poem until they understand the essentials of good poetry and can appreciate their application, this is also true in fiction and essays. After this they carry on individual, intensive reading where their interests lead them, reading by themselves and discussing their reading to add to the general knowledge of the class.

When the students are not pursuing the library method in literary lines in the literature classes, they meet in groups of eight or ten members once a week to discuss the books read by them since the last meeting. Their interests are consulted in the choice of subjects to determine the class in which they shall report. A student may wish to read in sociology, art, mythology, biography, travel, history, pedagogy, literature, and within his chosen subject he will doubtless want some particular phase or some special book to begin with. Wherever there is an interest he is helped to follow that in his reading through books suggested by the teacher and classmates, and he reads many phases of the subject according as his interest develops. The subjects are different each quarter that a wide range of interests may be followed.

In these classes the aim is to cultivate the interest first and in that way to arouse attention and the desire to read more. The reading must be rapid yet accurate and the thought given out in clear, pure English.

The connection between library reading and other branches is very close. Many of the interests which start the student in reading come from suggestions given in some of the regular classes. Library reading helps to give a broader view of technical subjects and from the reading classes a student goes to other work with a greater apperceptive mass to draw from. In English training both in the use of oral and written speech the library reading classes have no equal, for the student has something to talk about which he wishes to make plain and interesting to fellow-classmates, and to me this seems the only basis for training in expression. The subjects read by the classes indicate the closeness between library reading and other studies. In sociology classes they read of all phases of life and its problems, in history they have a chance to collect material around a period, or a topic, or some great name. There is a chance for general professional reading in pedagogy and psychology, and its helpmate,—fiction. Current articles of the day are used wherever they are found to be helpful. Geography is put to delightful use in the travel classes, drawing in the art classes. Some of the most interesting classes are those in art when we make use of the Layton Art Gallery, the annual Exposition collection, the mounted pictures in our library, the art room at the Public

Library, the decorations in the school house, and in fact, good art wherever we can find it. There are always classes formed to fit local or present interests. Last quarter classes were reading about China, about South Africa, and one class was following a city lecture course where Jacob Riis, Henry Van Dyke, Elbert Hubbard, and Ernest Seton Thompson appeared. The members of the faculty can correlate the classes more closely with their subjects by suggesting to the director of library reading books of general interest which are valuable in their studies.

While it has long been accepted theoretically that the man and his book are interdependent, it is only within later years that we have come to see that the same relation exists between the child and his book. Once the child's field of literature was inadequate, but with the demand came the supply—so great and so good. Of course with it then came the Hentys and Oliver Optics, writers who care only to lead children through twenty or thirty volumes of their own writing, but there are others who not only hold out inviting hands but leave a child with an interest that he seeks to gratify in other fields of information and pleasure. There are many reasons why children should be systematically encouraged and directed in their reading; chief among them these:

The boy who completes his course of study is specializing before he leaves school, for the keen competition of modern life compels it, and the man of science has no time to make himself familiar with "the best that has been thought and said in the world," while on the other hand the man of letters cares little for the fairyland of invention and electricity which would have fascinated him so greatly in the seventh and eighth grades. If these broad interests are not implanted and fostered in his life in the grades, then they must forever remain lost to him.

In our public schools only about one quarter of those that start in the primary ever complete the eighth grade, and it is the poorer children, without good home influences who leave school first, while a still smaller per cent. go on to the high school. In the grades then is where the mass of children must get acquainted with the world of books. They must there become so filled with the desire to read the best things that are written that when school life ends for them the habit of reading will draw them close to the public library.

Believing, then, that there is extreme need that the reading habit be rightly formed in the grades, library reading is carried on. The plan of organization in Milwaukee is as follows:

The children choose what they like to read. While they are in the lower grades there is no attempt made to keep them reading the same subjects. They read by themselves children's stories, histories, and poems, and the teacher also reads a great deal to them. Apparently this reading is without method but really the leader is starting interests in new lines or adding completeness to old ideas. Wherever the children show an interest it is fostered and used to promote more reading. In the grades the child is expected to make a report upon his book when he has read it. The tendency of the age is toward fragmentary reading. The literature of the grades hopes to correct this.

In the study of poetry, fiction, and books of information in the regular literature work, the essentials of each are discussed. These are

kept in mind by the teacher of juvenile literature and underlie the entire work.

In poetry the children read to feel the music, to visualize the pictures, to be swayed by the feeling and uplifted by the power of the poem, for poetry must speak from the heart of the poet to the heart of the child or it is not poetry. In the lower grades the teacher brings out these things in her reading. The poems selected for work here contain some vivid idea with not too many details and appeal in subject matter to the child. A poem for young children must be filled with good pictures and those listening must be trained to see and reproduce them in drawing and in speech. The music must be true, harmonious, and most of all, pronounced. Feeling in a poem holds a child closely, for the emotions of childhood are easily aroused. All intense feeling should be withheld though the sad and the happy should be blended. Such poets as Riley, Field, and Stevenson will help young children to love poetry. In the higher grades they are led to appreciate some of the elements of poetry for themselves. In the fifth and sixth grades they learn to recognize the pictures drawn by the best known poets, to appreciate their rhythmic power, to understand something of the poet's sympathy with nature and with life, to see his faith in goodness, and to follow the feelings portrayed. In the seventh grade they read Riley, Field, Holmes, Whittier, Longfellow, and Stevenson, making more of a study of the poet as expressed through all his poems. The teacher remembers always that the mission of poetry is to keep alive the feelings and aspirations for the beautiful in life and that no matter how clearly the facts in the poem come home to a boy or girl, that child is not reading poetry unless he gains from the poem an impulse that lifts him into sympathy with the beautiful and noble.

In the stories in the grades, as in all narration, the fundamentals are plot, character, purpose, and setting, or life. These things become of literary value when their expression has in it artistic merit. In the stories fitted for use in the lower grades strong plot or action and distinct character-drawings are necessary. The first training the little ones receive is that of re-telling the stories told or read to them, following the action as it has been given. In the third grade they are reading stories for themselves and here they begin to discuss, in a small way, the characters, and the manners and customs of the people, especially when the traits are at all peculiar. The fourth grade forms the bridge between the report in which the story is told and the fifth grade where the children discuss character and life, without relating the story. In the sixth grade characters, plot, and setting can be discussed equally well by the children. Historical fiction is introduced here, because our sixth grade begins to study history, also such books as the Jungle Book, Wild Animals I Have Known, and other books of fiction that lead to history and nature.

In the seventh grade they begin to read the standard novels, though we hold them back to the simple stories of home life as long as possible, such as Little Women and the Pepper Series.

In the eighth grade the novel is read for life chiefly and for description bearing upon life. The literary merit is discussed and the artistic side made prominent. The novels selected have good plot, accurate setting and noble, elevating characters. The passionate and dramatic should be kept from them until they love the simple and true.

Books of information are read in the library reading classes. In-

terests started in fiction and poetry and in regular recitation lead into the reading of history, biography, natural history, sketches of travel, etc. It is not until the children are in the eighth grade that any attempt is made to have them read the literary essay, and then only with a few writers like Charles Dudley Warner, Burroughs, and Irving. The essay work is confined chiefly to short essays in readers and magazines and we have a number of these magazine articles bound in manila covers especially for this grade.

This in brief is a very general outline of the plan of reading for the grades. The children recite at least once a week. The teaching is done by seniors who have taken the course offered in Professional Juvenile Literature in the Normal department. The pupil-teachers are overlooked by the critic teachers of the model school and the organization and supervision of the entire work throughout the grades is under the direction of the head of the department of literature in the Normal school. There is no one room dedicated to literature but according to the plan inaugurated in the Milwaukee Normal school, every child in the model school, and every student in the Normal school is reading something of value in which he is interested, and we call this library reading.

From the first grade to the senior year, the literature and library work is arranged so as to bring the students close to the mass of literature itself, so that the teacher of literature may become the teacher of the sure things of heaven and earth, instead of the teacher of biography and composition. Business men and women as well as librarians and teachers of literature are coming to see that the "literature of power," as DeQuincey termed it, that which touches life at all points and thus makes a universal appeal to human nature, is the strongest influence for a lasting civilization. Hence the so-called "library movement," which is so strong in our state today.

I believe that the librarian in children's libraries should find the teacher of the grades ready to co-operate in directing children to the right books and in fostering the love for them, for surely one of the best safeguards for the future of the state lies in the influence which inspiring literature will have over the minds and ideals of children. I want to add in closing a thought from Charles Dudley Warner's essay on the Novel and the Common School,—"The notion that literature can be taken up as a branch of education and learned at the proper time is one of the most farcical in our scheme of education."

REPORT OF COMMITTEE.

This report is necessarily incomplete, general conclusions only having been arrived at. We commit ourselves to words only to give the general scope. It was inferred from yesterday's session that the general aim is to develop a love for literature and foster a habit for reading. In regard to method and plans, we arrived at no uniform conclusion.

We recognize three stages of growth: childhood, the time of rapid growth, and maturity. These have their corresponding characteristics. The imitative impulse is strong in the first, delight in action in the second, contemplation and reflection in the third. The literature that

corresponds to the three stages is: first, the simple tale or story in prose, jingle, rhyme, refrain, imitative combinations in poetry; second, romance and adventure; the third introduces the more deeply artistic and philosophical. In the first the thought element is not strong, in the second the thinking is largely occupied by the objective world, in the third the attention is directed more largely to the subjective phases of thought with all that precedes as a part of the working material.

Cautions:—

1. While it is desired to pass from the simple to the complex in literary art, we do not wish to be understood as favoring any piece of literature which is simple but not great. Stevenson's, Riley's, and Field's poems appeal even more broadly to men and women than to children. In prose, Pilgrim's Progress and Robinson Crusoe may be cited.

2. Considering our aim, it is suggested that while the teacher should direct and form the taste of the child, he should do so by a study of the child's interests.

3. Dividing lines are not to be taken strictly, as they vary with the individual.

4. If the teacher introduces the contemplation, or philosophical element, he must put the appreciation on an intelligent basis. These may be introduced for their musical charm (if they have any) without regard to the thought element.

ELLEN F. P. PEAKE,
F. K. SECHRIST,
Committee.

MATHEMATICAL SECTION.

Leader, W. C. HEWITT, Oshkosh.

PURPOSE, SCOPE, AND PLAN FOR TEACHING ARITHMETIC IN NORMAL SCHOOLS.

M. A. BUSSEWITZ, Milwaukee.

PURPOSE.

I. Academic.

To systematize and extend the student's knowledge of arithmetic that he may—

1. Comprehend clearly its basic principles and discern the old in the new.

2. Acquire accuracy and rapidity in operating.

3. Develop insight into arithmetical relations and processes which will enable him to determine quickly what should be done in a particular problem or case.

4. Acquire power to state solutions in clear, concise language.

5. Firmly fix habits of neatness and systematic arrangement of written work.

6. Learns its application in successfully solving problems encountered in life.

II. Professional.

a. To comprehend the educational value of this subject—

1. As a utilitarian study.

2. As an instrumental study.

3. As a disciplinary study.

4. As a culture and ethical study.

b. To determine what topics should be taught and to arrange these in their logical sequence.

c. To impart power to separate these topics into suitable units for recitations in order to make the transition from the old to the related new as easy as possible for the pupil.

d. To develop ability to analyze the unit for the purpose of determining what must be known or done by the pupil in order to master it.

e. To impart power to select the new and to discern the relation of the old to the related new.

f. To devise, exemplify, and discuss approved methods of knitting the new to the old—

1. For presentation.

2. For drill.

3. For testing.

g. To bring to the student's notice the great psychological and pedagogical laws upon which rapid progress in this subject depends, and to impart power to apply these.

SCOPE.

I. Academic.

1. Brief reviews in factoring. G. C. F., L. C. M.

2. Drill in problems involving fractions.

3. Work in decimals, including the development of the decimal system of notation, and a drill of about fifteen minutes in changing numbers to another system and vice versa.

4. Work in percentage—pure and applied.

5. Reviews in other topics if needed by class.

The greater part of the time is devoted to professional work. This greatly enhances the student's knowledge of the subject and thus supplements the academic work in a large degree.

II. Professional.

A. Discussion of the educational value of this subject as outlined under "purpose."

B. Topics to be taught and their logical sequence.

1. Things to be learned incidentally in connection with reading, writing, language work, drawing, etc.—

a. To count up to 20 or 100.

b. To read and write these numbers.

c. To make simple measurements.

2. The four fundamental operations. The pupil's knowledge of reading and writing numbers extended when necessary but no attempt made to teach the system.

3. Factoring, G. C. D. and L. C. M.
4. Fraction, with the three cases of problems.
5. Decimals, including development of decimal system of notation.
6. Percentage, with its three cases.
7. Application of percentage not involving the element of time.
a. Profit and loss.
b. Commercial discount.
c. Commission, brokerage and stocks. (Omitting problems where a sum includes both proceeds and commission, because business men do not use it in their transactions.)
d. Insurance. (Omitting life insurance.)
e. Taxes. (Omitting poll tax.)
f. Customs and duties.
g. Applications of percentage involving the element of time.
1. Interest. (One method—the exact.)
2. Promissory notes and partial payments. (The U. S. method.)
3. Bank discount. (Considered as interest taken in advance—first case.)
4. Present worth.
5. Compound interest. (Knowledge of principle and use of interest tables.)
h. Measures.
1. Denominate numbers. (Confined to these in ordinary use. The fundamental operations with them as exemplified in most text-books are omitted as laborious and impractical.)
2. Mensuration.
a. Development of rules for finding area of plane geometrical figures.
b. Development of rules for finding area of simple geometrical solids.
c. Applications in practical work.
3. Square and cube roots. (Confined to factoring and estimating.)
i. Simple proportion.
g. To formulate the body of the psycological and pedagogical principles by virtue of which progress in the branch becomes easy and to point out and illustrate their application in the recitation.

PLAN.

After a discussion of the educational value of the subject, we take up the discussion as to what topics should be taught and their logical sequence.

The topics are separated into suitable units and these are then made a basis of lesson plans. A number are formulated in class for the purpose of exemplification. The students then formulate lesson plans on assigned units, and also separate topics into suitable units for work. The plans are read in class and discussed; methods of teaching the points involved are exemplified and basic psychological and pedagogical principles pointed out.

Academic reviews are taken in connection with the professional work on the topic, where they serve also the purpose of exemplifying methods and principles.

PURPOSE, SCOPE AND PLAN FOR TEACHING ARITHMETIC IN NORMAL SCHOOLS.

L. H. CLARK, River Falls.

PURPOSE.

I. Academic.

(a) Aim,—to equip the Normal school student with the knowledge of that body of definitions, fundamental principles, methods of the development of rules for processes and applications of arithmetic to business that a teacher should possess, and also to develop in him that skill, both economical in time and energy, in the solution of problems, very desirable in a teacher of arithmetic.

(b) Reasons for the academic teaching of arithmetic in Normal schools.

1. On entering the Normal school, not one student in ten possesses that knowledge of arithmetic as a science, or that skill in computation, that should be part of the equipment of the common school teacher. This is quite as true of students coming from high schools as those from common schools.

2. The work of equipping its students with such knowledge and skill in arithmetic as a teacher should possess, should not be undertaken by the high school, because such knowledge and skill are not essential for good citizenship or for life. Neither can the high school equip its students with such knowledge and skill, because of the immaturity of the students when they must drop arithmetic for more advanced and important studies.

3. Academic work in arithmetic is fully justified in the Normal school because much valuable professional knowledge can be acquired by the student in no better way than by receiving instruction under an expert teacher who calls attention from time to time to his application of the fundamental principles of teaching and to his methods of presentation and of drill.

4. Methods of academic instruction in public and professional schools must necessarily differ. The aim in teaching arithmetic in the public school is so different from that outlined above for the Normal school that the scope and plan of work must also be very different. In the public school, intellectual discipline is and should be the particular aim, while the amount of knowledge should be a secondary consideration. In the professional school, knowledge and skill in the application of this knowledge should be the leading consideration and intellectual discipline a secondary matter altogether.

AIM.

II. Professional.

(a) To equip the student with a knowledge of a body of principles and precepts of teaching arithmetic and a fair degree of skill in their application.

No argument is necessary to show the reasonableness of this aim.

SCOPE.

1. Definitions of all terms and processes.
2. Notation and numeration.
(a) Arabic with practice in writing numbers in different scales.
(b) Roman.
(c) History of notations.
3. Reduction.
(a) Numbers from one scale to another.
(b) Common fractions from one form to another.
(c) Common fraction to the decimal form.
(d) Denominate numbers.
4. Addition, subtraction, multiplication and division,—
(a) Numbers in the scale of 10.
(b) Numbers in other scales than 10.
(c) Common and decimal fractions.
(d) Denominate numbers.
5. Factoring,—
(a) Square and cube root by factors.
(b) Greatest common divisor.
(c) Least common multiple.
6. Mensuration,—
(a) Development of rules for finding the area of plane geometrical figures.
(b) Development of rules for finding the volume of simple geometrical solids.
(c) Practical applications.
7. Percentage,—
(a) Profit and loss.
(b) Commission.
(c) Interest, 1. Simple, exact, annual, partial payments.
2. Compound.
3. Discount, commercial, true, bank.
8. Proportion,—
(a) Simple.
(b) Compound.

N. B.—Some topics in the outline above are inserted because many principals and city superintenednts still require their teachers to teach them. Some county superintendents still examine their teachers upon them and also give questions on them in their examinations of rural school pupils for the common school diploma.

The topics referred to are true discount, stocks and bonds, simple and compound proportion.

PLAN.

Work in arithmetic in the State Normal school at River Falls is presented to four different classes of students.

1. Preparatory students are taught to perform with some degree of rapidity and accuracy simple operations in arithmetic without much philosohpy. This work is intended to fit pupils to do the work of the Normal school. They are drilled upon factoring, common fractions and decimals in particular.

2. Students who are admitted to the Normal department upon examination, but who are not up to grade in arithmetic, are placed in a class by themselves and given a term's work in analysis of problems in common fractions and percentage.

3. Students well prepared to do the work in the Normal department in arithmetic are given a term's work in what may be called the science of arithmetic, with special emphasis upon definitions and explanation of principles and methods of development of rules by induction. Besides this, they are drilled in the solution of problems of rather more difficult character than those given to class 2, and by methods at once economical both of time and energy. They are also instructed in methods of presenting the different topics in arithmetic to pupils in common schools.

4. The last class of students required to study arithmetic is composed of high school graduates and seniors who must take the professional reviews. The work presented to this class is very much the same as that of class 3, but with a larger amount of work of a professional nature. The aim of the teacher with this class is to qualify it for practice work in the model school. While it is called a professional review in arithmetic, still the teacher aims more directly at increasing the academic attainments of the students. Their greatest need is more knowledge in arithmetic and before they can do practice work in the model school they must know more of the subject matter they are to teach. The teacher also knows that much of the professional teaching he may give them will be repeated in the methods class by the supervisor of practice and that some of what the supervisor teaches may be directly contrary to that which may be taught in the class of professional review. Even if there were no conflict in opinion still it seems a waste of energy to have so much repetition. Hence the teacher of arithmetic feels that he can do his students more good by making them strong in academic work.

ARITHMETIC IN THE NORMAL SCHOOLS, THE PURPOSE, PLAN AND SCOPE.

EMILY F. WEBSTER, Oshkosh.

The purpose in teaching Arithmetic in the Normal schools must be determined by the object for which the Normal schools were founded and have since been maintained; hence a brief review of their specific work as established by law not only in this state, but in the other states of the union in which the Normal school is a part of the educational system, will not be out of place. It is scarcely necessary to observe that a Normal school is a professional school, and, in common with all other professional schools, has a specific object in view, that object being in the present case to afford a better opportunity for preparation to those who have already entered the ranks, as well as to thoroughly equip those intending to teach.

As the purpose of the Normal schools in the state of Wisconsin, according to the statutes of the state, is the preparation of teachers to

teach in the public schools of the state, the line of work done in them should be such as will best carry out the will of the state in this matter.

First of all a most thorough scholastic line of work should be provided for and carefully maintained, because, as Edward Everett said in 1837 in an address on Normal schools, "A teacher ought to know of everything much more than the learner can be expected to acquire. The teacher must know things in a masterly way, curiously, nicely, and in their reasons." Mr. Everett, though not a schoolmaster himself, maintains that a good teacher should be able to speak the English language with propriety, ease and grace, and this he says cannot be done without a knowledge of its grammar. He should possess at the same time a clear, shapely and rapid hand and be well versed in the elemental principles and operations of numbers, and he adds: "I venture to say that a man who possesses these three branches thoroughly is as rare as one of corresponding eminence in any of the learned professions." Judging from this testimony, the golden age of the thoroughly equipped public school teacher had not arrived back in the thirties. It cannot be charged against Mr. Everett that he belittled the advantages to be derived from a higher education, because he did not possess it himself, since he had it in large measure, but he still put his faith in the common schools and the common school branches, for, said he, in the address before mentioned, "The Normal school should raise the standard of common school education."

"If there be any persons to whom the words common schools, and common school education convey an idea of disparagement and insignificance, such persons are ignorant not merely of the true character of our political system, but of the nature of man. The common schools give the keys of knowledge to the mass of the people. A common school education must be had at home or not at all. I think it may with truth be said that the branches of knowledge taught in our common schools, when taught in a finished and masterly manner, are of greater value than all the rest that is taught at school. Our common schools are important in the same way as the common air, the common sunshine, the common rain, invaluable for their commonness. They are the fountain of that widespread intelligence which, like a moral life, pervades the country."

Leaving the East and the first half of the nineteenth century, let us advance to the middle West, and the sunset year of that same century to once more get our bearings, and this time we will take them from those who make the training of teachers their profession. The Indiana State Normal school says in its latest catalogue, "The sole purpose of a Normal school should be to confer on its students that education, discipline, professional training and practical skill, which will best fit them for teaching in the public schools. The school should limit its attention to this one thing, the preparation of teachers for teaching in the common schools of the state. The school should seek first of all to ground its students thoroughly in the common school branches,—they are the foundation of all learning."

All this has to do with the scholastic or academic training, and this for a high school or academy would be sufficient, but not so for the Normal school, for it has to do with the making of teachers, and Mr. Everett says "the future teacher must be instructed in the most effec-

tual way of reaching untaught mind," and he adds, "the Normal school should exercise a salutary influence on the cause of common school education. The office of the teacher in forming the mind and hearts of the young is all important. It is not a mere piece of job-work to which anyone may turn his hand, but a professional calling which requires knowledge, judgment and experience."

So much for the professional aspect as it appeared to a non-professional when the Normal school system was in its infancy. For the present opinion we may turn to the schools themselves, and in reading their catalogues, all are found to agree that the instruction involves a knowledge and a knowledge of how to present subject-matter so as to conform to the various steps of mental development.

Now that the purpose of the Normal schools, both according to law and by common consent, is to prepare teachers to teach in the common schools, and since arithmetic has a legal place among those branches, we may consider the purpose for which arithmetic is taught in the Normal schools, and in the light of the purpose for which these very schools were established, it becomes evident that the teaching of arithmetic has for its purpose such a fitting of young people that they in turn may teach the subject with some degree of skill in the common schools of the state.

Arithmetic has been degraded from its once proud place in the triumvirate of learning, but it still holds its own among the common school branches. Like Samson, it has been shorn of its might, and the schoolmaster no longer holds his place because of his prowess in "doing sums."

What can be done by the Normal schools to restore to it a measure of its ancient prestige? Dr. Winship says the country is in need of nothing new at present. The struggle for originality could profitably be laid aside and the teacher who can teach the most arithmetic in the shortest time will get both fame and honor. Teachers of the Normal schools, there lies our way,—"The most arithmetic in the shortest time." But how shall our young people be fitted to teach the most arithmetic in the shortest time unless they have first received a thorough training in the branch, a training that shall make them masters of the subject?

I would that Dr. Winship had not said "the shortest time," for that side of the problem has been emphasized till arithmetic is well nigh emasculated.

Something like a century ago Warren Colburn was inspired by a spark direct from the altar and a mental arithmetic was born into the world and men and women yet live who grew strong on that mental pabulum, and then there arose others who said "Let us away with this mental arithmetic and thus make room for more important matter." And arithmetic, having been smitten on the one cheek turned the other also and time was taken from it for Greek and Roman fables, for nature study, for popular science, and I know not what; and the parents are lamenting in bitterness of spirit because their children cannot cast up an account in interest, and the root of this evil lies in their inability to deal accurately with numbers, and the desire to save time at the expense of good, thorough, lasting work, hangs like a pall over our modern civilization. According to statistics the length of a man's days has been much increased; then whence

this foolish desire to shorten the time of preparation? The world's crying need is for better workers, and it should be the purpose of the Normal schools to furnish them. This craze for minimizing time has made itself felt in the Normal schools, and has expended itself most furiously on arithmetic, till forgetful that the Lord himself requires time, and cannot make a two-year old colt in a minute, we are vainly attempting to make skillful teachers of arithmetic in ten weeks.

The Rhode Island Normal school says in its catalogue that the special vocation of the Normal school is to beget the spirit of the teacher. The Indiana Normal school says, "As a teacher he should be freed from obedience to mere prescription and rule and acquire genuine originality and true individuality."

There was once a people who put itself on record as requiring bricks without straw, and hard taskmasters have they been called from that day to this. But wherein are we better than the ancient Egyptians? We say to the student entering from the high school who recognizes the manifestations of number, but is ignorant of the underlying principles, "Go to, now, have the spirit of a teacher," but it does not come with the laying on of hands. How shall he be freed from obedience to mere prescription and rule when the force of that prescription and the meaning of that rule are unknown to him? How shall he attain "genuine originality and true individuality?" Only through a masterful knowledge of the subject; and how shall he get a masterful knowledge? For this three things are necessary. Some maturity on the part of the pupil; reasonable time granted in the course of study; an understanding of the power and purpose of the branch on the part of the teacher. When he has acquired this masterful knowledge of the subject, acquired it in an atmosphere permeated with pedagogy, he is then, and not till then, prepared to examine the branch with special reference to teaching it to all grades of pupils.

High school graduates have little knowledge of the common school branches except that acquired at an early age, and in the grades below the high school; and the professional training that is superimposed upon such tottering, time-stricken foundations, has no depth of root. Under such circumstances it is not possible to carry out the Normal school plan, which contemplates imparting culture, skill and learning for a specific purpose, that purpose being a comprehension of the processes by which the learning mind gains knowledge.

County superintendents complain that reading and arithmetic are more poorly taught than any of the other branches. This surely ought not to be true of arithmetic, for there is a directness and a logical sequence which, if thoroughly understood by the young teacher, would enable him to give proper instruction in this very essential branch. The vexation which attends the study of this branch with many children would be incredible if one did not know so well what manner of man the teacher is. He is teaching in an unskillful, desultory, haphazard way. There is no form nor comeliness in his instruction, there is no beauty in it and there is no joy. When it shall come to pass that the teacher of arithmetic not only knows arithmetic, but knows that he knows it, he will be crowned with everlasting joy, and those that come under his instruction will rise up and call him blessed.

Can such a state of blessedness be attained in ten weeks? Normal schools of other states both east and west demand either a much higher standard for admission, or else give much more time to the branch, and some do both. The Rhode Island Normal school demands in "The Regular Training Course for High School Graduates" one-half year in the subject of arithmetic, and specifies that students must be graduates of a strong high school course well and fully mastered, or its equivalent. Graduates of accredited high schools are admitted to this school upon their diplomas, but take an examination in English, including reading, penmanship, composition and grammar, U. S. history, geography and arithmetic, the object being to ascertain the students' substantial, every-day knowledge and ability. High school graduates take this test unless they choose to review the subjects before entering upon the course.

The New Jersey State Normal school requires for admission quite as much as our students have time to acquire in their ten weeks of academic work. Let me quote the following from its catalogue, for 1900: "The instruction involves a thorough knowledge of the common school branches, a knowledge of mind and a knowledge of how to present the subject matter so as to conform to the various stages of mental development. The common school branches are taken up in the first year by the regular Normal teachers, and become in a peculiar way preparatory to the strictly professional work of the years to follow. The work of the second year is strictly professional. Arithmetic, grammar, geography, and U. S. history are again taken up and considered fundamentally in the light of method, or how to teach."

In the Terre Haute school, according to its catalogue, about one year of the Normal course is devoted to a thorough reflective study of the common school branches, and the student is required to possess the usual general knowledge of these subjects before he can be admitted. In the course for "Graduates of Commissioned High Schools" two terms of the first year are given to arithmetic, and there is no escape from it; as there are only three terms in the year, this means two-thirds of a school year. Graduates from commissioned high schools may obtain twelve credits at Terre Haute, but they are required to take the common school branches and the entire professional work,—the reason being stated that usually high school graduates have only such knowledge of the common school branches as they have acquired at an early age and in the grades below the high school. Only to candidates entering the "Course for Persons Holding Three Years' County License" is any credit given in arithmetic, and that credit covers two terms' work.

We of Wisconsin may claim the shortest time in our course, but alas for the common schools? We cannot claim the most arithmetic.

Have we not unconsciously drifted away from our true course? Are we not now striving rather to make a course in mathematics that shall enable our graduates to secure credits at the University rather than a course that shall make them strong teachers of mathematics in the common schools?

Is it not a mistake to ask the high schools to review the subject of arithmetic in the hope and expectation that the pupils will be thus fitted to enter at once upon professional work? Will this review carried on at the high school be surrounded by the "pedagogical at-

mosphere" that best prepares the pupil for the study of method with that branch? Distasteful as it may be to the student to take up the common school branches after he enters the Normal school, is it any the less distasteful to him in the high school? May he not indeed be made to enjoy it more at the Normal school through the new point of view which will then be given to him?

Would we not better trust the high schools to teach trigonometry and advanced algebra, and leave the review in arithmetic to the Normal schools?

Examining it, then, with the understanding that it is an instrument for the development of the human mind, will he not see in it a beauty unimagined before?

The conditions do not require that we should make of the young people either expert accountants, bankers or insurance agents, but the scope should be sufficient to equip a person for the ordinary demands of life which may come to him in business or in the pursuit of other branches of learning. As teachers they should have such a working knowledge of the subject, such skill in it, such respect and love for it, that they can train the boys and girls even from the primary grade to the high school, who shall in future come under their care so that they in turn may love it, attain accuracy and reasonable rapidity and acquire business-like methods of presenting the work.

Mental arithmetic should once more find a place in the school curriculum. No better means has yet been devised whereby a boy or a girl may get possession of himself or herself. The Millersville, Penn., Normal school says in its catalogue: "Mental arithmetic is placed in the foundation of this course both for its discipline and for its influence in the acquisition of the other branches of science. The object in mental arithmetic is analysis and mental discipline. In written arithmetic the aim is the power of synthetic thought and skill in the application of the science."

If the seven Normal schools of the state of Wisconsin would this day determine to fit their pupils as the law requires that they should, to teach the common school branches in the public schools, a light would shine in the dark places, and the waste places would be made glad, and the wilderness would blossom like the rose.

REPORT OF COMMITTEE ON ARITHMETIC.

The committee appointed in the mathematical section of the Oshkosh Institute for Normal school faculties for the purpose of formulating the requirements in Arithmetic for entrance and for graduation, begs leave to submit the following:

Requirements for entrance:

1. Accuracy and rapidity in the four fundamental operations with integral numbers. No explanation of process to be required.

Working definitions of all terms used.

2. Factoring to 100 by inspection and to 1,000 by tests of divisibility.

3. L. C. M. by inspection and factoring, numbers not to exceed 100.

4. Fractions:—nature; reduction; four fundamental operations and

comprehension of principles upon which these are based; application to concrete problems with analysis.

Denominators not to exceed 100.

5. Decimals:—nature, four fundamental operations; reductions; applications to concrete problems.

Decimal places not to exceed four.

6. Percentage:—nature, multiplication table of percentage, i. e., fractional parts in terms of equivalent percents and vice versa; the three general problems; profit and loss; commission (excluding problems in buying where the sum includes both commission and investment); trade discount; interest (by one method).

7. Denominate Numbers and Measures:—1. Tables:—avoirdupois weight; U. S. money; linear, square, cubic, liquid and dry measures; time. 2. Reduction and four fundamental operations. Examples to be limited to *two* denominations; as pounds and ounces; feet and inches, etc. 3. Practical work in area, capacity, carpeting, plastering and lumber.

REQUIREMENTS FOR GRADUATION FROM THE ELEMENTARY COURSE.

1. Definitions of all terms and processes.

2. Notation and Numeration:—Arabic, with brief drill in writing numbers in different scale; history of notations.

3. Reduction:—common fractions from one denominator to another; common fractions to decimals and *vice versa;* denominate numbers.

4. Addition, Subtraction, Multiplication and Division:—integral numbers; common and decimal fractions; denominate numbers.

5. Factoring:—square and cube root by factors; G. C. D.; L. C. M.

6. Percentage:—1. Pure. 2. Applied:—profit and loss; commission; simple and compound interest; partial payments by the U. S. Rule; trade and bank discount; stocks and bonds.

7. Mensuration:—development of rules for finding the area of plane geometrical figures and for finding the volume of geometrical solids; practical applications.

8. Proportion:—simple and compound.

The purpose of this work is to extend and systematize the student's knowledge of this subject, hence the academic phase should be emphasized.

REQUIREMENTS FOR GRADUATION FROM THE ADVANCED COURSE.

1. Comprehension of the basic principles of this subject and power to discern the old in the new.

2. Accuracy and rapidity in operating.

3. Insight into arithmetical relations and processes which will enable one to determine quickly what should be done in a particular problem or case.

4. Power to state solutions in clear, concise language.

5. Habits of neatness and system in arrangement of written work.

6. Knowledge of its application in successfully solving problems encountered in life.

7. Comprehension of the educational value of this subject.

8. Ability to determine what topics should be taught in the common school and power to arrange these in their logical sequence.

9. Power to separate these topics into suitable units for recitations in order to make the transition from the old to the related new as easy as possible for the pupil.

10. Ability to analyze the unit for the purpose of determining what must be known or done by the pupil in order to master it.

11. Power to select the new and to discern the relation of the old to the related new.

12. Ability to discuss, devise, and exemplify methods of knitting the new to the old:

1. For presentation;
2. For drill;
3. For testing.

13. Knowledge of the great psychological and pedagogical laws upon which rapid progress in this subject depends and power to apply these.

The greater part of this time should be devoted to professional work. This greatly enhances the student's knowledge of the subject and thus supplements the academic work in a large degree.

Respectfully submitted,

M. A. BUSSEWITZ,
L. H. CLARK,
EMILY F. WEBSTER,
Committee.

ALGEBRA.

PURPOSE, SCOPE, AND PLAN.

H. H. LIEBENBERG, Platteville.

PURPOSE.

Arithmetic is the science of numbers. Algebra is arithmetic generalized and enlarged.

The purpose of teaching algebra is to lead the individual to organize himself, by his own activity, along the lines of direct, accurate, and economic perception; vivid, concise, and practical imagination; keen, terse, rigorous, and logical analysis; candid, lucid, and unbiased judgment; clear, complete, and concise expression; and intelligent, practical, and varied application. It is to secure, pre-eminently, that clear and clean-cut method of thought which is at the basis of all effective interpretation of nature, which is so powerful in the regulation of social intercourse, and which is the dominant factor in the determination of means to ends in the relations of life and its environments. Properly persented and rationally assimilated, number and its application is the greatest tool we have to bring adjustment, order and economy into the activities of organized society. How many activities of man can we name in which the application of number does not stand out in bold relief? We often find algebra classified as a "form" study and more frequently do we find it taught as purely a "form" study, taught as a study of symbolism in the abstract. Under such conditions it is certainly not strange that algebra frequently appears "dry" and that results are meager and unsatisfactory. Well has it been said that

"form" without "content" is barren. What is needed in much of the algebra work now done in our schools is a purpose higher than the memorizing and manipulation of symbols. We need "form" enlivened and enriched by "content" to give it more meaning and interest. The purpose should ever be to stimulate and cultivate clear and clean-cut thought rather than to memorize and to learn to manipulate meaningless symbols and forms.

SCOPE.

First term—

1. Algebraic language, including definitions, signs, symbols, etc. (developed when needed).

2. Equation, axioms and their relation to the equation.

3. Addition: (a) monomial, (b) polynomial, (c) literal co-efficients (simple cases).

4. Subtraction: (a) monomial, (b) polynomial, (c) literal co-efficients (simple cases).

5. Signs of aggregation: (a) removal, (b) introduction.

6. Multiplication: (a) monomial, (b) polynomial.

7. Division: (a) monomial, (b) polynomial.

8. Factoring, monomial factors.

9. Difference of two squares: (a) simple, (b) binomials which can be put into that form, (c) trinomials which can be put into that form, (d) polynomials which can be put into that form.

10. Difference of two cubes: (a) simple, (b) binomials which can be put into that form.

11. Sum of two cubes: (a) simple, (b) binomials which can be put into that form.

12. Binomials in general: (a) difference of odd powers, (b) sum of odd powers, (c) sum of even powers which can be expressed as the sum of odd powers.

13. Quadratic form: (a) co-efficient of x^2 unity, (b) co-efficient of x^2 not unity.

14. Grouping.

15. Cubic expressions, co-efficient of x^3 unity.

16. H. C. F. and L. C. M. factoring method.

17. H. C. F. and L. C. M. division method.

Second term—

1. Fractions.

I. Reductions: (a) reducing a whole or mixed expression to a single fraction, (b) reducing a single fraction to a whole or mixed expression, (c) reducing to lowest terms, (d) reducing to higher terms, (e) reducing to common denominator.

II. Fundamental operations: (a) addition, (b) subtraction, (c) multiplication, (d) division, (e) complex fractions.

2. Simple equations.

I. One unknown quantity: (a) numerical (solving with use of notation), (b) literal, (c) problems.

II. Two unknown quantities: (a) numerical (solving in each of the three ways), (b) literal (solving in any of the three ways), (c) problems.

III. Three unknown quantities: (a) numerical, (b) problems, (c) principle growing out of I, II, and III applied to equations of four or five unknown quantities.

3. Involution.

I. Squaring: (a) monomial, (b) binomial, (c) trinomial (grouping), (d) polynomial.

II. Cubing: (a) monomial, (b) binomial, (c) trinomial (grouping).

III. Higher powers: (a) monomials, (b) binomial theorem a sufficient number of the lower powers by mutliplication, the general theorem by induction (not a proof).

4. Evolution.

I. Square root: (a) monomials, (b) polynomials, (1) factoring method, (2) geometric method (area representation), (c) numbers, (1) factoring method, (2) geometric method (area representation).

II. Cube root: (a) monomials, (b) polynomials, (c) numbers, (1) factoring method, (2) geometric method.

Third term—

1. Exponents.

I. Five laws, provide for integral exponents and assumed for other exponents (expressed in formula as follows):

II. Meaning of exponents (with proof for (a), (b) and (c)): (a) fractional, with exercises for application, (b) negative, with exercises for application, (c) zero, with exercises for application, (d) the five forms of an algebraic expression with a fractional exponent.

III. Application of the five laws: (a) simplifying, (b) multiplication, (c) division, (d) factoring, (e) roots.

2. Surds.

I. Reductions: (a) remove factors from radical, reverse, (b) clear radical of fraction, reverse, (c) lower the index, reverse, (d) surds in simplest form, the three conditions.

II. Addition and subtraction.

III. Multiplication: (a) monomials, (b) polynomials.

IV. Division: (a) monomials, (b) polynomials.

V. Involution and evolution.

VI. Rationalization of denominators.

VII. Equations involving surds.

3. Quadratic equations, one unknown quantity.

I. Pure: (a) numerical, (b) literal.

II. Affected: (a) numerical, (b) literal, (1) completing the square, (2) formula, (3) factoring.

III. Higher equations which can be put into quadratic form.

4. Quadratic equations, two unknown quantities.

I. One equation of the first degree, the other of the second degree, solved by direct substitution.

II. Both equations homogeneous, of the second degree, solved by division.

III. Miscellaneous equations solved by substitution, division grouping, etc.

IV. Problems.

5. Ratio and Proportion.

I. Deriving other proportions from a given proportion. (a) inversion, (b) alternation, (c) composition, (d) division, (e) composition and division.

II. Problems.

Fourth term (from one to two and one half years elapse between the third and fourth terms' work).

1. A review of portions of the work of the previous terms, giving more attention to the theoretical side than to methods of teaching.
2. Theory of exponents.
3. Imaginary quantities.
4. Theory of the quadratic equation.
5. Indeterminate equations.
6. Progressions: (a) arithmetical, (b) geometrical, (c) harmonical.
7. Binomial theorem, proved for positive integral exponents, assumed for other exponents.

Fifth term—

1. Undetermined co-efficients, including the application to separating a fraction into partial fractions.
2. Logarithms.
3. Theory of equations: (a) number of roots, (b) relation between the roots and co-efficients, (c) transformation of equations, (d) calculating the commensurable and incommensurable real roots of an equation, (e) cubic equation; (1) general solution, (2) application.

PLAN.

The plan of work is to arrange for the best possible conditions which will lead the pupil with a minimum waste of effort to do the thinking and acting necessary to attain the above stated purpose. The value of a recitation for any pupil depends directly upon the kind and amount of thinking and expressing that it leads him to do. Intelligent expression depends upon clear thinking, and clear thinking is possible only when there is a real familiarity with the nature and characteristics of the elements that enter into it. The great amount of waste in the teaching of algebra today is not due to the lack of effort on the part of the teacher or on the part of the pupil, but is due to the pupil's poverty in ideas.

The pupil is coaxed and induced to try to think when he has not the elements of thought to do it with. For instance, before we can rationally add and explain mathematically how we find the sum of 5 cows and 7 horses we must see that common quality in a cow and a horse which enables us to make the following reductions: 5 cows = 5 animals, 7 horses = 7 animals, hence 5 cows + 7 horses = 12 animals. It is more difficult to find the sum of 3 sounds, 2 sins, and 1 solar system than to find the sum of 3 chairs, 2 chairs, and 1 chair, because it is more difficult to make the necessary abstractions for seeing a common quality in the former than it is in the latter. The pupil cannot rationally add the former until he has recognized that common quality in them which makes them addable. A procedure without this must lead to meaningless symbolism, a study of "form" without "content." Similarly when a pupil has learned that the factors of $a^2 - b^2$ are $(a + b)$ and $(a - b)$, even when he has proved it he may have failed to recognize that quality in it which determines that it can be factored. When he has once abstracted that quality it is easy to lead him to see the same quality in $c^4 - x^4$ even in $\frac{16x^5}{y^6} - \frac{1}{9x^{12}}$ but the readiness with which he can abstract this quality in any of these expressions depends largely upon the richness of his conception of a and b, upon the content that these have for him. Always see to it that the pupil's ideas have content. Connect the work in algebra when-

ever possible with the work in arithmetic. As soon as good algebraic material is on hand connect also the new with the old whenever direct relations exist. But it is not sufficient to simply mention relations. For instance, it frequently happens that a pupil's arithmetical idea of a fraction consists simply and solely of a memorized group of meaningless symbols, and any attempt to generalize this into the algebraic idea of a fraction must prove futile. In all such cases the pupil must be led to observe, abstract, and generalize those characteristics of the concrete which he needs in the thought processes to form an enriched conception of a fraction. It is this that I mean in the "purpose" when I say that "form" should be enlivened and enriched by "content."

Ever begin with the concrete and present the conditions that give rise to the new topic or show how the new topic may grow out of a topic already studied; show what mathematical tools are used, how, and, if possible, why they are used; oral work by the class (mental algebra); written work; summary by the pupil; application, including the solving and making of problems. The oral work and the making of problems are among the most valuable exercises. In such topics as rule for signs in multiplication, laws of exponents for fractional exponents, even for some pupils the rule for signs in subtraction, it is best to state and explain the rule clearly and teach the pupil how to use it, leaving the why until he can master it with less waste of effort. In such topics as the equation, axioms, binomial theorem, it is best to have each pupil examine a sufficient number of specific cases for a basis for inferring the general case. In the great majority of topics teach the pupil what, how, and why, next let him do (oral and written), then lead him to express what he has done in his own words and he has the best rule there is for him (the summary already mentioned). Similarly explain to him the need, meaning, and use of the algebraic language and terms as they are needed in the work, then lead him to word his own definitions.

These wording exercises, properly conducted, can be made most valuable training exercises. Written exercises in familiar work calling for the maximum amount each pupil can do in a specified time are an excellent device for cultivating rapidity. Roughly estimating or approximating the result, by which to detect absurd answers or to check answers, affords good training and is very practical. An occasional consideration of the method in use is helpful. Patience, tact, cheerfulness, interest, and kindly shown sympathy should form no small part in the teacher's attempt to introduce the pupil to their friend—Algebra.

PURPOSE AND PLAN IN TEACHING ALGEBRA.

JOSEPH V. COLLINS, Stevens Point.

Algebra unlike most other branches in the elementary course, stands by itself in two or three important particulars. For one thing, in our teaching it is not very closely connected with either arithmetic or geometry, and not being closely connected with them is therefore not very closely related with any other study. Then again, if most teachers were to be asked what is the good of the study of algebra, they would have difficulty in giving an answer satisfactory even to them-

selves. The educational value of algebra is probably inferior to that of either arithmetic or geometry. I do not forget that algebra enables the graduate from arithmetic to solve much more difficult problems than those allowable in the latter subject, and that it teaches a form of generalization. But, on the other hand, an algebraical solution of an arithmetical problem is of no use to a teacher to give to a class which does not understand algebra, while the idea of generalization is seldom mastered by first and second year people in the high school. Why, then, does algebra get the place it occupies in our curricula? The answer, I believe, is for neither of the reasons just given, but because it conditions nearly all of the mathematics that follows it, from trigonometry to the calculus.

If this view is correct, then it would seem as though an injustice were being done the scholar who goes out into the world during or at the end of his high school course, in the interest of the scholar who takes the more extended course.

I am asked to treat of the purpose, plan and scope of the work in the teaching of algebra. First, then, with reference to the purpose. If I mistake not, most teachers have been controlled very largely by the purpose which we saw above secures for algebra its place in the curriculum, viz., the laying of a foundation for the study of the advanced branches of mathematics. Now what is called for in these higher branches is ability in making reductions and transforming expressions into equivalent ones and in solving equations. The end and aim of the teaching with this purpose in view seems to be summed up in the one word *facility*. The student who can add and subtract, square, or cube, and extract roots, and solve for x in the hardest problems most quickly and accurately is the best product of the school. This student can hand in the best entrance paper in the college examination and get the best mark, which is evidence that his training is the best. Now there is justice in this view, but it is doubtful whether there is pedagogical wisdom behind it. It seems to assume that algebra is a subject filled with forms which the scholar must learn. For instance that $ab = ba$, that $a^3 - b^3 = (a - b)\ (a^2 + ab + b^2)$, that $x^n . x^m = x^{m+n}$, that x on one side of an equation becomes $-x$ on the other side; but why these things are so need not concern him, since he can get results in algebra without knowing the why. The case is something like that of the engineer who uses logarithmic and other tables without knowing much about them. He may be much quicker and more accurate and reliable in getting results than one who understands the philosophy of the tables. But it does not follow that educationally or in the long run he is as well off as the other. In short, I think we see in the ordinary teaching of algebra now what has been true of the teaching of arithmetic in the past, that it is mechanical, full of forms without reasons behind them. All this is much to be regretted and steps ought to be taken to change the purpose from mere facility to *facility plus fundamentals*.

The plan of teaching will be largely determined by the purpose in view. If this purpose is chiefly facility in algebraical transformations, then the work will consist largely in training what may be called the memory for algebraical forms and will be best accomplished by multiplying exercises. If on the other hand not mere results but also culture is aimed at, then the purpose will be,—

(1) To connect algebra more closely with arithmetic.

(2) To clear up all the obscure points in algebra with much care.

(3) To demand the reasons underlying operations of all sorts instead of merely accepting them by analogy from arithmetic.

(4) To make the reasoning feature in the study of equations the most important part of the training in the whole algebra.

(5) To train the scholar to facility in making all sorts of algebraical transformations.

The first of the purposes named above is the connecting algebra more closely with arithmetic. How shall we plan to attain this end?

The definition of algebra often given says it is the science which uses letters as well as figures in the study of numbers. But if I understand the matter aright, there is another feature in algebra besides the use of letters which differentiates it from arithmetic, viz., the use of two kinds of numbers, the positive and negative. Since these two characteristics run through the whole warp and woof of algebra, I am led to think that this latter difference deserves to be put on an equality with the other, and hence I believe algebra ought to be defined as the science which uses general characters as well as figures in the study of numbers, marking its numbers off into two opposite kinds.

Now recognizing that there are two difficulties for the scholar as he enters the portals of algebra, I contend that he ought to be given only one of them at a time. But one of these difficulties, that with the signs, can be overcome while still using the familiar Arabic notation for numbers. I would teach this first then, and would develop all the rules for signs for all of the fundamental operations without the use of a single letter to stand for a number. But I would go a long step further. I would teach all this *in the concrete*. This can easily be done when one is allowed to use the Arabic notation freely. Thus the rule for algebraic addition can be derived most easily from elementary book-keeping. A man in his accounts has credits and debts coming in indiscriminately. Purposing to combine them in one result, he puts those of each kind together, takes the difference between the results, and, so to speak, prefixes the sign of the greater. Every time a scholar forgets the rule for addition I would take him back to a concrete example. Similarly subtraction can be taught by concrete examples, as by finding the difference between the financial standing of two men, or by finding the difference between two dates, or between the positions of the mercury in a thermometer on successive occasions. It is not so easy to teach the rules for signs in multiplication and division concretely, but it can be done and is worth the trouble. In this way the transition from arithmetic to algebra can be made easy by having the pupil conquer these difficulties one at a time.

Another way to connect algebra with arithmetic is by using a letter to represent the unknown in problems, but in other respects reasoning out the solution as one would be obliged to in arithmetic. This course has been pursued by a number of authors, and always, I believe, with good results. This method can be utilized for solving difficult problems in arithmetic.

The second purpose named above was to make very clear the obscure points in algebra. Most of these difficulties are connected with the fact that algebra has in it the two kinds of numbers, positive and negative. In one sense algebra is more general than arithmetic and

includes the latter; but in another sense, algebra is one thing and arithmetic is a very different thing. Thus, only problems whose numbers admit of both positive and negative values are properly algebraic problems. To be specific, problems involving a merchant's gains or losses, or distances to the left or right of a given point on a horizontal line, or the like, are algebraic, while those dealing, say, with the length of a rectangle or the number of apples in a basket, or the like, are not properly algebraic problems but arithmetical, since if any negative values enter they cannot be interpreted. I do not think this is well understood, even by teachers, and it leaves an obscurity, conscious or unconscious, in the mind of both teacher and scholar, which is, of course, to be regretted.

Regarded as a science the most interesting thing in algebra is the logic of the solution of equations. Good teachers have probably always given attention to this matter. Those teachers, however, who depend largely on the text-book for guidance will be led to neglect the whole question. Among all the older text-books, and I am familiar with perhaps 20 or 30, none attends properly to this matter with the single exception of Olney's, and he presents it in long drawn out explanations after solutions. What is meant by attending to it is drilling on the reasons which justify the several steps in any solution. Most, perhaps all, algebras explain clearing of fractions, transposing, etc., but they do it just once and then drop the matter. Now, experience shows that drill is the only thing that will fix the reason in the scholar's mind. A Normal school principal in New York state said to me that he believed that 99 out of 100 of the graduates of our schools were not taught and would not be able to promptly explain the solution of equations. Of the recent text-books on algebra, Beman and Smith calls for this drill in the reasoning and is the only one, aside from my own, to do so. Mr. Smith in his work on The Teaching of Elementary Mathematics has this to say on the subject: "The teacher will do well to avoid such mechanical phrases as 'clear of fractions' and 'transpose' until the reasoning is mastered; indeed, it may be questioned whether these phrases are ever of value." My conviction is that the logic of the solution of equations is an admirable mental training and that it prepares the student for the rigorous reasoning in geometry. The best way I know of to attain this attention to the reasoning is to have the student write after each line of a solution the axiom which explains what has been done and why it may be done. Such a notation, in effect a species of shorthand, is in line with the whole history of algebra which has always been substituting short for long hand.

When the student learns that the whole process of solving an equation is reasoning and not following a rule, he will not be so disposed to servilely follow the rules, but will think for himself. Prof. Chrystal has an interesting sentence bearing on this question which caught my attention several years ago: "There are few parts of algebra," says he, "more important than the logic of the derivation of equations, and few, unhappily, that are treated in a more slovenly fashion in elementary teaching. No mere blind adherence to set rules will avail in this matter; while a little attention to a few simple principles will readily remove all difficulty."

When the subject of equations is first taken up, one can teach that axiomatic changes in an equation ordinarily do not destroy its iden-

tity but merely change its appearance or dress. Indeed, one can mark the equation so as to indicate this. Thus, if there are two equations given, the first in all the forms it comes to assume, can be marked (1) and the second equation (2), priming these numbers to distinguish the several forms of the same equation. That all that is proposed here is feasible I can vouch for.

Before finally leaving the subject of equations, the teacher should investigate with his class the question Herbert Spencer set for himself in the second volume of his principles of psychology, viz.: What is the logical connection between the several equations of a solution? The matter has a psychological as well as mathematical bearing and for that reason, as well as on its own account, deserves attention. From the mathematical standpoint there is more to the matter than Mr. Spencer's discussion would imply. The best treatment of the questions involved I have seen is in Chrystal's Text-book of Algebra, Chapter XIV. The substance of Mr. Spencer's argument is that the axiom "things equal to the same thing are equal to each other" generalized into "relations equal to the same relation are equal to each other" lies at the foundation of all such reasoning. But mathematicians find that some of the relations in the chain are not equal to others. Hence arise difficulties in inference. I find students much interested in these questions, and it is a healthy shock to them to find that the axioms cannot be always depended on for results, and that verfication in the original equation is the only test that cannot mislead.

As stated above, algebra should be more closely connected with arithmetic. Similarly geometry should be more closely connected with algebra. We fall into a great mistake in not making a larger use of algebra in geometry. This can be done in one way by letting letters represent geometrical magnitudes, but more particularly through solving difficult exercises algebraically. The number of exericses in what has been called determinate geometry commonly given should be greatly increased.

One other matter I feel like referring to, though I will not discuss it at all. It is an examination into the smallest number of fundamental principles and rules from them which a scholar must know thoroughly at the different stages of his progress in order that he may be equipped for the work he has in hand. I have made a study of this question as applied to arithmetic during the past year, reducing the number of really fundamental things to about a dozen for the whole arithmetic. I should like to offer this topic as a subject for thought and discussion at the Institute, should this proposal meet with the approval of the other teachers concerned.

In conclusion, and as regards the scope of the work in algebra, I should prefer to see a smaller number of advanced topics thoroughly taught than to see more attempted. I think the mistake is made in many colleges of trying to teach freshmen subjects in algebra for which they are in no wise prepared and from which they get little of value to them.

GEOMETRY.

G. L. BOWMAN, West Superior.

Purposes.—Geometry should be taught, first of all, to secure an appreciation of quantitative space relations. The construction of our machinery, large buildings, bridges, docks; the laying of drains, the location of streets, railroads, water-ways; the navigation of our lakes and oceans,—all these require more or less acquaintance with space relations. The measuring and comparing of magnitudes in everyday life demand this knowledge. Arithmetic is not well understood till fair progress in geometry has been made. Geometry makes arithmetic possible. It is the foundation to physics and astronomy and may well be called the greatest of sciences.

In the second place, but no less important, geometry should be taught to train in syllogistic reasoning. This is the reasoning of everyday life. In our civilization to get on well, one must know how to proceed with security from premise to conclusion. Even our everyday identifications, our classifications, are made after the manner of the syllogism. In everyday life our premises are very frequently defective, so conclusions drawn from them are often misleading. The study of geometry opens the field of ideal premises to us, offers the opportunity for a secure passing to a perfectly reliable conclusion.

In the third place, geometry should be taught to give skill in its applications to quantitative relations that enter into our commerce, our study, and our making; to secure high ideals in judging and reasoning concerning the things that give confidence in our own thinking as well as confidence in the conclusions of our fellow men. To habitually reason under the influence of geometrical ideals imparts dignity to the mind with love of truth and unswerving purpose.

Scope.—The course in geometry should include elementary or synthetic geometry and enough of its application to insure clearness in the arithmetic for those magnitudes beyond the reach of direct methods. If the study of geometry does not do this for the student, training in reasoning is of first ultimate importance, but this first I cannot see that it would be of great benefit to him. I know the phase needs to be mastered to hold the interest and to give significance to the study within the range of the student's experience.

Enough of analytic geometry should be taken to insure the fact that algebra may be applied to geometry and that the constructions may be generalized. I know that time will forbid doing much and it is of doubtful propriety as it is too difficult for the ordinary Normal school pupil. To do much in this would require an extension of time for geometry considerably beyond its present limits or a much higher requirement of attainments for admission to the school.

While I believe that the Euclidean geometry will constitute the main portion of the geometry taught in the Normal school yet any course that does not provide for some instruction in the non-Euclidean will scarcely answer the demands of the best thought at present. I can see how some of it might be taken in connection with work as given now, but I do not see any way to include an extensive treatment of it with only present possibilities in view.

I believe the scope in geometry to be incomplete if it does not take in a considerable amount of inventional geometry. I know it is not pure geometry, but it is too valuable for training the visualizing and inventive powers of the mind to leave it out. It assists the pupil to see ideal figures in pure geometry; it gives that skill of hand which is necessary to real pleasure in the study and makes the pupil ready in furnishing drawings to fit his work in original demonstrations. I wish our texts would furnish more of it.

Of course elementary geometry is the stalk upon which every scion quantitative and reason syllogistic must be grafted. So that the geometry teacher who lives up to his privileges will find that time will not hang heavy on his hands. But no more ought to be taken than can be done well and enough ought to be taken to leave the pupil with a permanent interest in the subject strong enough to invite him to make an effort at self-instruction after leaving school.

Plan.—I must confess, at the outset here, that I approach this part of the work with a great deal more hesitation than I have any preceding part of the discussion. As I look over my plans as they have been in the past, I see so many places that might be changed with profit that I can do little more than to possibly excite discussion in the hope that I shall be benefited thereby. I have been diligent in my search through the plans of others, and while I have often been rewarded, I still am looking for the plan that shall be adequate for the demands of the real aims in geometry. I believe this is due to a close adherence to traditional methods. Until in the last decade there was little effort made to change what had been in vogue in teaching geometry for hundreds of years. Just now there is considerable activity and our Normal school, in one of its representatives at least, is taking a very pleasant part. This puts one who formulates plans right to the front where the bullets fall thickest and where repulses are felt keenest. I venture a few suggestions, however, and trust they will be received in the spirit in which they are given, will be accepted in case they are worthy; but if not, will be set aside by the substitution of something better.

In any plan, I believe a mastery of the underlying concepts and necessary truths is fundamental. To this end material forms are very valuable, but it must never be lost sight of that thought objects are the real fundamental notions in the science. In this connection can be used many models that will suggest the geometrical notion. Material angles, surfaces, and solids presented to the pupil in forms he can handle will lead to an understanding of fundamental definitions as nothing else, that I know of, will. The definitions, of course, must be stated and mastered in such a way that the statement will bring the concept in mind, and *vice versa*.

A profound belief in necessary truths should be gained through discussion and illustration. An axiom is not a self-evident truth except to him who understands it. Pupils may be able, they frequently are, to roll axioms off their tongues readily enough, but the simplest test is sufficient to reveal that they are not understood. I do not mean that the fundamental concepts and axioms should be introduced and mastered at once. I believe it to be a much better plan to introduce them as needed. Pupils come to us claiming a good standing in geometry who are so deficient in these fundamental necessities that I feel like urging the importance of doing this work of

definition with great thoroughness. I believe much of the success or failure is due to the ideals allowed to obtain in this part of the work. All the old ideas of arithmetic and of algebra, if algebra has preceded, should be utilized to clearly set forth these notions. In the course of the work they should be again and again called up, tested, and brightened.

The simplest figures should be taken first, gradually introducing the more complex in such order as to render lemmas almost unnecessary. The order as followed by most text-books may be regarded as sufficiently logical for our purpose. Figures in one plane to be introduced before those whose parts lie in different planes, for obvious reasons. Figures in geometry are ideal. The drawing is not the figure. So many pupils come to me who have had geometry, and who are so fully bound by what the eye sees that it is almost impossible to get them to allow the mind to be addressed. This leads me to believe it is a characteristic of their former instruction. We must admit that the first notions are secured through the concrete of the senses, but who would defend the proposition that this is geomtery until the mind is freed from the concrete? Constant effort will be needed to lead the pupils away from the products of sense and to prefer the products of thought. To this end drawings should differ as much as possible in lettering, in form, and in material,—preserving only the essential relations. In this phase of the work inventional geometry stands first in value. If pupils are ready with the straight edge and dividers, with pocket knife and scissors, the chances are the mind will be constantly addressed and the same old drawing that has so long charmed the eye will have lost its occupation. So many figures are found in the material of the room, especially those of solid geometry, in the surroundings of the pupil, that the wonder is that much of any thing else should receive the almost exclusive attention that the time honored drawings have had. It would seem that those combinations of material that owe their existence to geometry would commend themselves to the student and teacher of geometry. This ever varying material of which the drawing is made prevents the learner from mistaking the form that appeals to the eye for the substance that appeals to the mind.

A full understanding of the nature and the plan of the geometrical demonstration should be secured before the pupil should be asked to use it unaided. It should be studied in and of itself. The pupil should subject it to a strict analysis. Each part should be carefully examined and its relation to the part going before fully appreciated. It is best to commence with the general enunciation separating it into hypothesis and conclusion, resolving the hypothesis into the premises and noting the premise of relation; passing next to the drawing, examine its parts and point out the part that represents each premise, noting on the way the different forms the drawing may take; taking up next the special enunciations and their different forms of statement; then carefully examine step by step of the proof, citing the authority as it should follow or precede the statement of the step; and, finally, ending with special and general conclusions. It may take several recitations to do this, but I believe it pays. The apparent loss of time is more than made up by greater speed later on. I believe the first demonstrations should be written and subjected to a close inspection by the teacher. The papers should be

handed back for correction and re-writing. If the work is very defective it should be re-written until properly done. Later the demonstrations can be first handed to a committee of the class appointed by the teacher for their inspection and correction, finally passing through the hands of the teacher. The same committee should not serve long at a time. The papers which are perfect might be read in class slowly so that the class may challenge any point as it is passed over. Of course the drawing would have to be copied on the board. Some time after the middle of the first book, the oral demonstration begins to be the rule and the written form becomes a much briefer form as the use of the recognized symbols and abbreviations will have been introduced.

Pupils should be encouraged at all times to make their own demonstrations, at first through questions and suggestions, and finally unaided by any of these. One of the greatest evils the Normal schools have to fight is the memorized demonstration in geometry. I have pupils in my solid geometry class who confessed to a year's tuition in geometry and were recognized in a flattering way by their school, who had never made an original demonstration,—nay, more than this, who never had drawn a single conclusion. In all of their geometry work the thought powers seem to have been carefully shunted. Great care should be exercised in handling those pupils who come to us in this condition for the shock that comes to them when they first realize their condition should command the teacher's encouragement and sympathy rather than his condemnation. I know they are somewhat to blame for this condition of things, but I know of somebody else who is much more to blame. If the Normal school gets back of that kind of geometry that institution must suffer. The first thing to do is to get the pupil to see his condition and the next is to get him to face it squarely. With these two elements in favor the chances are that the mischief will be corrected. I think I would rather, sometimes, take a pupil through the entire course than set one right who has gone wrong.

This leads me to my next point in the plan. The teacher will need to know the nature of conception, judgment, and reason, for it is with these powers that geometry has to do. If he knows not how concepts are formed, how judgments are made, and how conclusions are drawn, it will be the blind leading the blind, and there need be no wonder if both should land in the ditch. When a subject is psychologically taught it is practically taught and therefore correctly taught.

He should appreciate that the pupil's happiness in the study of geometry is to come from the consciousness of clear concepts, of the ability to make accurate judgments and to draw conclusions in which he can have perfect confidence. There is nothing that pleases a student so much as to be able to give the correct answer, and this pleasure is greatly augmented when he knows that he got it himself. On the clearness of notions depends the clearness of expression. The grand test on this particular is clear, original language as the English of the pupil.

The teacher must learn to hold expectation in check and wait for the results. This is especially true during the first work. It takes time to think. Only the most expert can think fast and it is better to think one proposition through carefully than a half dozen hurriedly. I know this is difficult. We are haunted with the notion

that we must hurry, hurry. We seem to catch it from this American life. We want to get through. We are more concerned about getting through than how we get through. Our pupils hurry. They hurry their preparation,—rush it through. I have seen groups of them together, all talking at once, preparing the geometry lesson, because the time was short. Thought does not grow in such an atmosphere. That is not the heat in which are forged the conclusions that are to stand against the world.

As a rule I fear too little time is given to geometry in the Normal schools. A full year is little enough for plane and solid geometry and a year and a half would not be any too much. Arrangements can now be made to give high school graduates twenty weeks. Where as much time as this is given they can cover in a way the last book of plane and those of solid geometry. I much prefer they take in review the last book of plane, because of the chance to freshen the theory of limits, as well as to show them weaknesses of the work before, if any should appear to me to exist. Then I can usually tell if it is worth while for them to go on and finish the work.

If we had time for it much profitable work could be done in the field in working out some of the more common problems. I have done little or nothing in this, mainly for the lack of time on my part and a too heavily loaded course on the pupil's part. This work ought to be done under the supervision of the teacher at first. Such problems as finding the height of objects, the width of streams, and the area of ponds could be solved through the properties of triangles and without surveyor's instruments.

I believe the plan ought to take in a great deal of original work. It should begin with original demonstration work first, of those theorems in the regular work, next theorems that have not been demonstrated for the pupil nor the demonstration suggested, and finally, the original work should be almost entirely of construction. In the constructional work the beginning should be made as the work progresses with the regular constructions given in the text. The next stage of the work should be those for which the teacher furnishes the data. Gradually, through the encouragement of the teacher and his success in the work, the pupil swings out into inventional geometry with the purpose to discover, to him at least, new truth. With two hands skilled in the use of straight edge and dividers and a mind back of them that delights to reason, the pupil can take care of himself, at the same time making of himself a citizen highly useful to the state and community. I am sure this field of original construction has not been utilized as fully as it might be. It is not in itself pure geometry, perhaps, but if the learner pursues the plan, "construct and prove," reaching for something new constantly, he will have abundant use for pure geometry.

It is urged against the American-taught geometrician by some of the better class of foreign schools, that he cannot stand against the test of inventional geometry. I do not think that it is because he has not had that particular kind but the fault lies in the fact that he has not been taught to reason. Inventional geometry is a fine test. It gives the student a means to test himself and to measure his power. It demands reasoning to succeed in it and it is the acme of practical geometry.

I do not wish it understood that I do all this work in my own classes. Far from it. I succeed in getting individuals to do more or less of it.

Some, after being started, keep it up of their own accord and never miss the originals. I have no doubt that some will never go far into it because they have come too late to it, or their tastes lie in other directions. I am handicapped on account of time and so are you. We need more of it and the best way to commend ourselves for an increase is to use what we have to the best advantage.

I wish to say in conclusion, that we need more and better models, tools, and contrivances for the initial stages of the work. The mathematics department should be fitted out with the same care as the laboratories in natural science or the art departments. These things will come, I believe, when teachers of mathematics recognize that geometry grows out of space relations as represented in the concrete and is to be applied to the organization of material in accordance with those relations and that to draw these notions from what is at first seen and apply them to what cannot be entirely seen, demands a careful training of mathematical conception, judgment, and high ideals in quantitative reasoning.

PURPOSE, SCOPE AND PLAN OF TEACHING GEOMETRY IN NORMAL SCHOOLS.

G. C. Shutts, Whitewater.

I. Purpose.

To the ancient Greeks the purpose of the study of geometry was simply to search after truth. To us it is more varied, viz.:

1st. To know the facts of geometry for the sake of their value in the practical affairs of life. The farmer, the mechanic, men in nearly all vocations reap advantages from its study.

2nd. To train the reasoning faculties. Each statement of truth rests ultimately upon definition or axiom, and as the student proceeds in his work he is led to build up a body of truth, any part of which may be utilized by him in arriving at new truth. Each statement must, in order, rest upon a previously established truth; each is a link in a logical chain of reasoning from premise to conclusion.

3rd. To train in the use of language. The student who by his own analysis of the theorem succeeds in discovering previously established truths, and is then able to so arrange and combine them as to arrive at his conclusion, has not only given himself a training in thought power, but if his thought has been well expressed, a lesson in language that has no superior. The thought has an exact significance, and to grasp it and to use language that conveys it clearly and exactly to another, is a training in language that every boy and girl needs. To jumble language, to make careless statements, or to guess at the thought, is only to bring one down in confusion; hence the subject is valuable for training in exactness of thought and its correct expression.

4th. Professional. So far its use in the school curriculum has been considered from the academic standpoint. But besides and above what has been said, it ranks high for its value in professional training, and this vindicates its use in a Normal school.

Every study in a Normal school should play its part in the professional training of the school. Not only should it be valuable from the

academic standpoint, but through it, the student should learn something of the art of teaching. Later it will be seen that geometry will not fail if tested by these requirements.

II. Scope.

The amount of work that should be done in the subject should be determined in part by the program. Many Normals in other states devote forty weeks to its study, while we give but thirty. This should be regarded as the minimum. The amount of matter studied in plane geometry should not be less than is sufficient to lead up to the area of the polygon and the circle; in solid geometry to the area of the zone, surface of the sphere, and the spherical triangle, and to the volumes of prisms, pyramids, cylinders, cones, spheres, spherical sectors, and spherical segments. This can be compassed in plane geometry with from one hundred sixty to one hundred eighty propositions, and in solid geometry with from eighty to ninety propositions. To properly teach the subject in addition to the above, there should be solved by the pupil, unaided, from two hundred to three hundred exercises, dependent upon and enlarging the application of the regular propositions. The number of exercises should vary with different students, depending upon their ability, assuming that some pupils will be able in a reasonable period simply to attain to a minimum standard. This exercise work can, I think, best be accomplished by putting a premium on demonstration of exercises instead of making it a requirement. This brings each pupil up to his best effort, and in the recitation a variety of demonstration results, thus adding interest and value of the class-work. A short course well handled will give more geometrical training than a long one in which the pupil is allowed to rely more than necessary for results, upon teacher or text. It is the amount of thinking rather than the number of pages studied, that determines the amount of training the pupil receives. When an original demonstration is developed in class, those not reciting gain much more thought power than if listening to an argument with which they are already familiar. In general, the more original work done in class and out of it, other things being equal, the greater the scope of the subject.

III. The Plan of Work.

As in every other subject of study the pupil must grasp the aim, which in this case is expressed in the theorem. He should be induced to represent it without assistance, when possible, in a figure. The aim is not fully appreciated until this is done. If the pupil is not able to make an analysis of the theorem, he should have at hand through help of teacher in class, mimeograph notes, or other means, a sufficient statement of what must be known or done to enable him, step by step, to reach the conclusion as expressed in the aim. At this point is the greatest difficulty, viz., to give just the amount of assistance necessary and to keep pupils from helping one another, so that they may get the largest amount of training. As most pupils study a text, the teacher should try to inspire each to use it only to get the help that is necessary to make out the demonstration. The texts are usually made for the pupils of a minimum standard of ability, but it is usually possible to inspire a pride in original work that will lead to the above result. All suggestions to the pupil should be given with reference to making him independent in his work; they should lead him to grasp principles by which he may direct himself.

For instance, suppose that the theorem to be demonstrated is, that if two secants meet without a circle they are reciprocally proportional to their external segments. The pupil must know that that statement means that $\frac{AC}{EC} = \frac{DC}{BC}$, AC and EC being the secants and DC and BC the external segments. He must know that to get his proportion he must get it by means of similar triangles, hence as he has no triangles they must be constructed. To be able to do this he must know that the homologous sides of those triangles should form the ratios, and that antecedents should be taken from the same triangle, and consequents from the same triangle. The construction is now very simple, but to make it the pupil has grasped and applied a general principle. Having his triangles, he must discover that they are similar, which calls for a knowledge of similar triangles and inscribed angles. Before the assignment of the proposition all of the above information should be in the pupil's possession, except the theorem and its special enunciation. This the teacher should see is fully grasped by him.

To avoid confusion, I would have pupils, when beginning, always select homologous lines for the terms of a ratio, and if they wish the proportion in any other form modify it by alternation or some other principle in the theory of proportion.

For further illustration, suppose the requirement is to construct a fourth proportional.

Given a, b, and c, the fizrst, second, and third terms of a proportion to construct x, the fourth term.

Having, as before, mastered the aim, he must know that each figure in which a proportion of four quantities has been established may be utilized for the solution of the problem. Having selected one he must know that the given quantities, a, b, c, and x must take the places of the corresponding terms of the proportion in the theorem selected. The situation can best be studied by representing the figure, and through it studying how to effect the construction. To illustrate: Suppose the theorem, "If two chords intersect the segments are reciprocally proportional," be taken.

The pupil must know, for instance, that $\frac{AO}{OD} = \frac{OC}{OB}$, O being point of intersection, AB and DC being chords, and that a must take the place of AO, b of OD, c of OC and x of OB.

To effect the construction, he has simply to draw a, b, and c so that their extremities meet at a point, b and c forming a straight line. The circle can now be drawn through the other extremities of the lines. If a be extended through O, the point of intersection, to the circumfrence, x is determined.

In assigning a lesson for construction of third, fourth, or mean proportional, for instance, a construction could be effected before the class, taking an authority at random as a basis. Then if several of the propositions be called to the mind of the pupil which might be used, he should be able to make an intelligent study of the subject, and if sufficient time is allowed, possibly produce several methods. I have seen a large part of a class produce two constructions of a fourth proportional, several more than two, and one as many as five.

A whole class hour may occasionally be spent with great profit in bringing out the different original constructions that members of the class have worked out. Of course not all propositions will

be as productive of different methods as the one last cited, but when one occurs it should be utilized for what it is worth. The teacher should ever be alert to induce original work and then see to it that it gets due credit.

To sum up this phase of the plan of teaching: The teacher must be sure the pupil understands the aim and that he has in mind or knows where to look for what he must know to enable him to get his lesson.

To the pupil thus far the work has been purely academic, except in so far as he has been observing his teacher's methods. As the subject-matter probably needs all his attention this would be but incidental. When the pupil has his lesson so that he thinks he understands it, he should then prepare it so that he can make the class understand it. He is now studying from the teacher's standpoint. In the recitation he should be given the class and held responsible for their understanding of the truth he wishes to present. It may easily be seen that original work lends itself better than any other to the professional as well as to the academic phase of the work. He should be taught to follow the class as he develops his thought and to quickly detect by the expressions and movements of the pupils anyone who has lost the thread of the argument. If the pupils raise questions he can, if he has fully prepared his lesson, settle the points in doubt or dispute. I have seen a well equipped pupil question his questioner with expedition and profit. He should be his own judge as to the best method of clearing up the difficulty, and be held responsible for results. But here the teacher should be on the alert to see that time is not wasted by bungling pupils, or that no one in class takes the opportunity to annoy the one reciting; in short, must act as moderator.

The pupil who recites with eyes upon the teacher, studying carefully his face for approval or dissent, has no place in a Normal school. The teacher should occasionally call attention to his method of assigning a lesson, and should frequently discuss the success or failure of a pupil from the professional standpoint. In short, the subject of geometry should be so handled that the pupils will be better able to teach it, or any other subject, for having studied it in a Normal school.

REPORT OF COMMITTEE.

The committee appointed by the Leader to report upon a minimum of propositions to be used in the work in geometry in the Normal schools of Wisconsin, beg leave to submit the following:

That in the text of VanVelzer & Shutts, which was used as the basis of comparison, the following omissions only should be made: Articles 278, 279, 287, 305, 306 and 307.

1. The theorems of articles 305, 6 and 7, while necessary for authority in later work, should be postulated rather than demonstrated, and freely illustrated, for the argument is so difficult that no student fully grasps the thought without too large an expenditure of time.

2. As proportion in geometry is not the proportion of algebra in all respects, the theorems of proportion should not be omitted, even

though previously studied in algebra, but should be carefully considered from the geometrical standpoint.

Respectfully,

GEO. C. SHUTTS,
JOS. V. COLLINS,
G. L. BOWMAN,
Committee.

SPECIAL.

APPLICATION OF THE FOUR FUNDAMENTAL PRINCIPLES IN TEACHING ARITHMETIC, ALGEBRA, AND GEOMETRY.

G. C. SHUTTS, Whitewater.

The subject of the four fundamental principles in their general application has already been discussed, hence this paper will consider only their application to Arithmetic, Algebra and Geometry.

At first thought the statement of the importance of their application seems but a truism. Yet when one considers the amount of unsatisfactory work done in our schools, the amount of energy expended at a loss by both teacher and pupils, the utter failure, so many times, to reach important results, through failure to apply them, he feels that, in schools devoted to the work of training teachers, too much emphasis cannot be laid upon them.

Arithmetic.

It has been frequently affirmed that "too much time is being devoted to arithmetic." I think this is true, and that if one half to one third of this time could be devoted to history and kindred subjects the pupil would be better prepared for citizenship. Can equally good or better results be accomplished in less time? Much work is done in arithmetic without a carefully defined aim. The teacher should first consider the subject as a whole; but to dub her aim "mental development" or "character building" is not sufficient. Both of these aims, as generally considered, are so indefinite as to be practically valueless.

In determining the purpose of teaching arithmetic, it is naturally classified into pure arithmetic and applied or into abstract processes and concrete problems. The principal aim in the former toward which pupils and teacher should be consciously working is skill in computation, and by skill, I mean habits of accuracy and rapidity; and to this aim everything else should be subordinated; in the later, the aim is to acquire power of thought, i. e., the power to analyze a combination of conditions given and so arrange and combine them as to arrive at the result demanded. When these purposes are kept each in its legitimate field, with rational means of accomplishment, arithmetic may be compassed in less time with more satisfactory results. The aim of the subject as classified in its grand divisions should be thoroughly understood by the pupils, especially in Normal schools, for it must at all times be studied from the point of view of the teacher. Then the aim of each unit of work in the assignments from day to day should be related to, and made to fit into, the general aim so that the pupils may see each part logically made to subserve its purpose, viz., to accomplish the ultimate aim.

There was a time in the past when arithmetic, because the *curricula* of our schools were suffering from a scarcity of matter, supplied the demand for all kinds of training. But now that "enrichment" has gone to such an extreme, it should take its true place as an instrument for use in life experiences, in school and out. And just as the tool chest of the carpenter contains implements designed for different kinds of work, so the subject-matter of arithmetic should be treated with discrimination as a means to an end.

It has been said that each lesson has its aim which should be carefully defined. To illustrate, suppose a lesson in least common multiple be considered. This is one of the abstract processes and the aim may be stated: To ascertain the method of finding the least common multiple of several numbers and to acquire skill in performing the operation.

Before the teacher is ready to assign the lesson she must make careful classification of what must be known or done to accomplish the aim, viz.:

(a) Skill in factoring.

(b) Meaning of multiple, common multiple and least common multiple.

(c) The principle that the multiple of any number must contain all of the factors of that number.

(d) The knowledge, growing out of the principle, that the product of the highest powers of each of the prime factors occurring in the numbers is the least common multiple.

(e) Drill for skill in computation.

To direct the pupil's energy with the greatest profit the teacher must determine in class and out of it what the pupil already knows of *a*, *b*, etc. If *a* is not known the pupil is not ready to have the lesson assigned; hence the teacher should know that *a* is known. The remaining items should be canvassed to show the pupil what he does not know, and consequently upon what he must apply his study; and suggestions should be given him as to how to study most profitably. For instance, after the meaning of the terms has been illustrated, the truth of the principle *c* should be shown, and by application of the principle to several numbers the truth of *d* will appear. Now unless a proper appreciation of what must be done to accomplish *e* is in the pupil's mind, most of the study hour will be wasted. To determine this the ultimate aim must be kept in mind, viz., skill in computation, i. e., the pupil should acquire a reasonable degree of skillfulness, and not be embarrassed by clumsy habits or methods. To show the pupils how to accomplish *e* several numbers whose prime factors are known at sight, should be expressed upon the board. Have a pupil name any prime factors of one of the numbers. Have him state the greatest number of times it occurs in any number, keeping in mind principle *c*. The same with each of the remaining prime factors of the numbers. By taking the product of these powers of the prime factors according to *d*, he has his answer.

If the above work is carefully done in the assignment of the lesson, and it may require one fourth to one half of the recitation period, the pupil is ready to devote his energy to the essentials. The next recitation hour should be devoted to training in working examples. It should have it in two elements: a testing of the study of the pupils and a drill to show further how to study for the next lesson. This

drill should be in the nature of the training given by a coach to make the hundred yard dash, i. e., to get there in the best form and the quickest time. I should not allow the pupils to express the prime factors of the numbers, but would demand that they simply multiply together the highest powers of the prime factors of the numbers, which powers, if they are ready for the subject, they can recognize at sight. If drilled in this way they will soon be able to get the answer before they would be able to write the prime factors of the numbers. One serious fault that militates against our aim in arithmetic is the practice of allowing pupils to expresss so much work that might be mentally performed.

In the concrete problems it has been said the aim is to develop the power of thought. Principles *b*, *c* and *d;* viz.: "What must be known or done and the difference between what the pupil now knows and what he must know to solve the problem, must determine the selection of the problems for any given pupil or class of pupils." Such problems must be selected as contain enough of what the pupil knows or can do that he may be able to master the element of the unknown. If there is no unknown in the problem it is of no value toward the accomplishment of the aim. If the unknown element is too large the pupil fails, and the problem is again valueless; besides, he is apt to become discouraged in the work upon other problems. A careful selection of problems, keeping in mind the four fundamental principles, and giving due credit for original work, will make this part of the subject an exceeedingly valuable one.

One condition necessary to success here is that facility be acquired in the abstract process before it is applied in the concrete problem. The carpenter who attempts to saw off a board by means of a draw shave may accomplish his purpose, but he can scarcely enjoy the work while in progress nor contemplate the result with much satisfaction. No more should the aim in arithmetic be divorced from the nature of the subject if the work would be pursued with pleasure or profit.

Algebra.

Before the first recitation in algebra the teacher should have in mind, clearly defined, the different aims to be accomplished by the work as a whole. At one time it should be the acquirement of skill in computation, this is perhaps not so prominent a feature for the simple purpose of skill as in arithmetic; at another, the development of a formula and its interpretation or translation into a rule of action. This is an important function of algebra. In other subjects, as physics, astronomy, or other mathematics, formulae are required in the development of the subject, and it is the function of algebra to supply them, sometimes, training in deductive reasoning. Algebra is especially adapted to this as it is based upon definitions and axioms, and the notions defined are of the most general nature; and still again the function is to train the imagination, judgment and memory.

Other aims might be named. It is sufficient to say that the nature of the subject-matter should determine the methods of presentation.

Having determined the general aim and having selected a given unit of work, as for instance, the solution of symmetrical simultaneous quadratic equations, the special aim must be considered, viz., to determine the value of the unknown quantities in said equations. What must be known or done that the solution may be effected must be deter-

mined by the teacher before the lesson is ready for assignment. For instance,—

(a) A knowledge of the divisibility of the sums or differences of like powers of two numbers by the sum or difference of the numbers.

(b) A knowledge of how to solve the quadratic form in whatever guise it may appear.

(c) A rule for the solution of the general problems—(1) given sum and difference of two numbers to find the numbers and—(2) given product and the sum, or product and difference of two numbers to find the numbers.

(d) The methods of elimination of elementary algebra.

(e) Training to enable one to detect the particular method of solution for any given example.

Before the pupil is ready to have the lesson assigned, *a*, *b*, *c* and *d* should be known. The work for the pupil lies in *e*.

The general aim, to train the imagination, judgment and memory, is in point here. As the several varities of these equations give a large range of possibilities of solution, an unusually excellent opportunity for training in judgment is here given.

In the more simple of these examples, as $x^2+y^2=34$, $xy=15$, the pupil should be asked to simply state the steps in the solution. To do this he has, from the conditions given, to judge what to do and represent in mind the results. The results he must remember, again judge what to do and represent in mind the results. This has to be continued to the end of the solution. Or send class to the board and have pupils simply express results in second member of the equation. This is exceedingly valuable mental training. The imagination, judgment and memory are trained as they cannot be when the slow process of writing out the whole of the first member of the equations is indulged in. In too much of our work, in both algebra and arithmetic, is the physical exercise of recording the work allowed to become a drag upon the mental, or to supersede it altogether. Much of this muscular exercise had better be remanded to the gymnasium. But this mental training can only be done when the four principles have been duly considered and proper relations established. Every subject in algebra when considered from the standpoint of the four principles with due regard to the nature of the subject becomes valuable for development of power.

Geometry.

In geometry the four fundamental pinciples must be observed if one would have his pupils do original work. The aim is expressed in the theorem; a part of what must be known is also there expressed.

The test of whether this element of what must be known, is understood by the pupil, is whether he can represent it in a figure. The remainder of what must be known or done consists of previous propositions, axioms and definitions; and the ability to detect by comparison of what is given with what is required, their application in the figure. This latter, simply, is usually the unknown that remains for the pupil to accomplish.

The teacher must be keenly alive to the relation of this element, viz., what remains to be done, to the ability of the pupil. This unknown factor must be such as to keep the pupil up to steady, hard work, not so small as to remove the need of effort nor so great as to overcome him. In either case the proposition is of no value as a means

of training. In order to maintain a proper equilibrium between this factor and the ability of the pupil or class to analyze it, the teacher must give suggestions to assist the pupil; i. e., must make the known element larger. This may be done in various ways, viz., by directing what to do; by giving a reference or authority; by drawing a construction line or lines; by developing in class a parallel demonstration, etc. What help is given should as far as possible be general in its application. The pupil thus grasps and applies a general principle and is able to take a broader view of his subject. This can usually be done by getting clearly the general notion of what must be known or done as called for in the theorem. For instance, the pupil is trying to get his proportion to establish the fact that "a perpendicular let fall from the vortex of the right angle of a right triangle to the hypothenuse is a mean proportional to the segments of the hypothenuse." He has discovered in a proper figure that the triangles are similar. At this point he needs to know that the terms of a ratio should be homologous lines in the similar triangles and that the antecedents should be taken from the same triangle. This suggestion being general in its nature not only bridges the unknown in this proposition but makes him the master of many propositions that follow, and gives him a broader view of the subject.

The secret of success is to keep this fourth of the four fundamental principles just up to the ability of the pupil, gradually enlarging it as he grows.

In arithmetic, algebra or geometry, success is conditioned upon an application of the four fundamental principles, for while they concern themselves with what should be done, taken in their full significance they underlie and suggest how to do it. The "method of the how" is built upon the sand unless its foundations are laid deep in the "method of the what."

REPORT OF LEADER.

The leader of the Mathematical Section submits the following report:

1. The program was carried out as printed.

2. There was a general agreement in the purposes for Algebra and Geometry as laid down in the papers of Mr. Collins and Mr. Liebenberg.

3. The discussion in Algebra and Geometry was confined largely to the scope of these subjects.

The amount of matter taught in Algebra in the various schools was essentially the same, but it was thought best to appoint a committee to determine the minimum amount of matter for the courses in Plane and Solid Geometry. This committee consists of G. C. Shutts, G. L. Bowman, and J. V. Collins. The report of this committee will be placed before the Board of Regents in due time.

4. (a) In Arithmetic there was some difference of opinion in regard to the purpose of teaching Arithmetic, but it was finally decided that the purpose laid down in the papers by Mr. Clark, Mr. Bussewitz, and Miss Webster, were not inharmonious and were complete enough to cover the work in Normal schools.

(b) There was some difference of opinion in regard to the scope of Arithmetic in the Normal school, and in order to unify the work of the various schools as much as possible the following committee were appointed: M. A. Bussewitz, L. H. Clark, Miss Emily Webster. The report of this committee will be placed in the hands of the Board of Regents as soon as possible.

The points to be covered by the report are:

1. The amount of Arithmetic necessary to enter the Normal schools.
2. The amount necessary to graduate from the Elementary Course.
3. The amount necessary to graduate from the Advanced Course.
4. The relation of academical and professional Arithmetic.
5. The following resolutions were submitted by Mr. Clark and unanimously adopted:

Resolved, That the President of each school be asked to call conferences of the model school teachers, the supervisors of practice, and the head of the department of mathematics to arrange a course of study in Arithmetic that shall contain both the topics to be taught as well as the method of teaching them. Furthermore, that this course of study shall be a guide so clear and definite that it may be given the student teachers to guide them in their preparation of their lessons for their practice classes.

Resolved, That the head of the department of mathematics in each school should be relieved of enough academical work in the Normal department to give him time to observe the work done in arithmetic in the model school and to confer from time to time with the supervisors of practice and the model school teachers.

RESULTS OF THE CONFERENCE ON MATHEMATICS.

1. A discussion of the purposes in Algebra and Geometry in which there was a general agreement with the purposes set forth in the papers read.

2. As to the scope of Geometry, a committee of three was appointed to suggest the minimum scope of work in Plane and Solid Geometry. The committee is to correspond with mathematical teachers in all the Normal schools.

3. In Arithmetic, there was some discussion of the purpose in the academic and professional phases. But the opinion prevailed that the purposes set forth in the various papers were not inharmonious and were fairly complete.

4. A committee of three was appointed to do the following:

(a) Determine the content in arithmetic for entrance to Normal schools.

(b) Determine the amount for graduating from the Elementary Course.

(c) Determine the amount for graduating from the Advanced Course.

(d) Suggestions for co-ordinating and professionalizing certain phases of arithmetical work.

5. A resolution submitted by Mr. Clark was adopted looking toward enlarging the power of the professor of mathematics over the work of the model school.

W. C. HEWITT.

MODEL SCHOOL TEACHERS.

Leader, NINA VANDEWALKER, Milwaukee.

MODEL TEACHING FOR OBSERVATION CLASSES: WHAT MEANS SHOULD BE USED TO MAKE THIS OF MOST VALUE TO OBSERVERS?

ALFARETTA HASKELL, Oshkosh.

So many things have to be taken into consideration when determining upon the best course to be followed in the work of observation that it is a difficult matter upon which to decide. The existing conditions in our Normal schools make it impossible to follow a general plan.

About this one point, however, there seems to be no question:—that until the work in observation is placed upon the same definite basis as other branches in our schools, the most profitable results cannot be reached. Under our present program it is almost impossible to find available classes for observation, the practice program being so crowded.

Those taking the work in observation are, as a rule, young and inexperienced, few of them have taught, and fewer still have any knowledge of the fundamental principles underlying the art of teaching.

Not long ago while reading an article dealing with the ever-vital question, the education of the child, this statement appealed to me with a new force: "It is at the point of the child's sense contact with the external world that the opportunity for our best appeal to him lies." This was read shortly after holding a conference with a group of observers, a conference which had left us with a feeling of depression, knowing by the children's faces that we had failed to reach their point of contact.

The observers, strangers, come to us for a few moments' conference each week. We know nothing of their mental status, of their past experiences in the educational field, and that great element, time, is against us in enabling us to know more of their needs. So we do the best we can in the short space of time allotted us and try to explain our aims and the scope of the work.

The object should be the greatest good to the greatest number. In order to accomplish this the department teacher should meet the class in observation before the recitation for the first week or two, give to them her plan of recitation, emphasizing the special points to be observed.

It is but just to these earnest young people that something more than mere generalizations be given them upon which to base their observations.

It will be necessary for the teacher to explain the purpose of the lesson, its correlation with other branches; why this particular subject should be taught at this time; what has preceded it and what advanced work is to be based upon this.

It may be said that giving the plan of work to the observers before the recitation may lessen their self-activity. But is it not true that we find ourselves studying some fine picture, a beautiful piece of sculp-

ture, with a greater degree of enjoyment through having some knowledge beforehand of the artist and his conception? If we are going abroad, or going to enter a new field of labor, we strive to gain as much knowledge as possible regarding existing conditions.

If we endeavor to make plain to the observers our plan of work during the recitation, having their needs rather than those of the children uppermost, in our minds, we defeat our own purpose,—the conducting of an ideal, or model recitation. I recall visiting a school of observation at one time when the teacher explained the various steps to the observers in the presence of the children. It reminded me forcibly of the labeled drawings of the small boy. Every effort should be used to keep the children unconscious of being observed, as the moment they become self-conscious spontaneity of thought and action ceases.

After the recitation a regular period should be taken in which the director of observation, the department teacher and the class in observation, meet to discuss the lesson. This discussion should be based upon the following points:

Was the plan closely followed? If not, why not?

Is it best not to adhere too closely to one's plan?

Unforeseen incidents—how used?

Attention: Being good, how secured? If poor, give reasons and remedy.

Interest: How aroused and maintained?

Attitude of teacher toward the subject:—Did she deal with it with zest and enjoyment?

Attitude of the children toward the subject.

Character of relations between the teacher and pupil:—Was there a mutual respect, confidence and helpfulness?

Were the powers of the child's mind cultivated in the right order? Give examples.

How and where did the teacher use testing? teaching? drilling? What was the relative proportion of each?

What was done to stimulate self-activity on the part of the child?

What materials and illustrations were used? Why these?

What means of self-expression were used by the children? Were they encouraged to do any constructive or illustrative work?

What were the individual needs of the children? How were these met by the teacher?

The observers should become familiar with the books used both by teacher and pupil; they should be required to learn something of the author's aims; they should determine why a certain book is placed in the hands of the children at this stage. Does it supplement the oral teaching? Is it adapted to the needs of the children at this particular time? Why? Is it well graded, so that all matter may be used or does the teacher make selections?

They should be helped to measure results.

Has the work been progressive and cumulative from day to day?

Has each new lesson been related to the preceding lesson or to some other branch?

Has the child gained in knowledge of the subject-matter and in ability to use it?

Why have some children gained more than others? How has the teacher met this?

Is the stage of progress suited to the grade of children?

Such relations should be established between the department teacher and observers that the latter will feel free to come with questions at any time when the former is free. They should be encouraged to visit the department at other times than at the regular assignment, studying the children under other conditions in order to make relative estimates and to better determine the individual and class needs.

The majority come to us now having but three questions to ask:
What is the average age of the class?
How much time do the pupils have for preparation of the lesson?
What is your purpose in the work?

It is plain to be seen that they are failing to get the spirit of the work. This is the fault of no one so long as there is such a pressure of other work, allowing but the minimum of time to be devoted to this branch. The only way to solve the difficulty is by having more and definite periods set aside for conference and discussion, thereby establishing closer relations between those having charge of the work and the observers.

Again, there should be more concentration of thought along particular lines. The period of time devoted to observing one branch should be extended. Five weeks is none too long to be given to this. Say, for instance, all the observers are sectioned and assigned to the various arithmetic classes in the several grades. The results at the end of the five weeks would be of inestimable value. The conferences would be of far more worth than at present and on general principles the truths gained would be true in all succeeding work.

One of the greatest lacks in the present system of observation is the inability of the observers to realize the unity of the work in the several grades. Their programs will not admit of more frequent periods of observation, so that in our consultations with them we must strive to give this to them. Wherever possible they should be required to see the connection between the work in geography, history and nature work, the relation of reading and spelling to these branches and note that the language work is also largely based upon them. If done here when they reach their practice we shall be able to get a greater unity of thought in the work all along the line.

MEANS NECESSARY TO OVERCOME THE BAD EFFECTS OF POOR TEACHING IN THE GRADES BY PUPIL-TEACHERS.

J. I. JEGI, Milwaukee.

The title of this paper affirms positively that evil effects result in the grades from the teaching done by pupil-teachers. As a general proposition it must be granted. No one can observe the work of any number of pupil-teachers, day after day, without clearly realizing that the children are in the hands of immature, inexperienced young artisans who almost daily meet conditions with which they cannot cope, problems they cannot solve, opportunities they cannot appreciate. Yet I wish to say that there are some pupil-teachers in every large class, who are a help, an inspiration, from the very beginning, both to the children they are teaching and to the critic teacher under whose super-

vision they instruct. This class is, however, in the minority. Were it not so, there could be little justification for the maintenance of Normal schools at state expense, at least the model department or practice school, and the critic teachers would constitute a non-essential attachment, a sort of luxury, an afterthought of little consequence.

While the subject assigned me seems to call for measures designed to correct the evil effects, to repair the injury, to make good the loss, or to deal with the mischief after it has been done by the pupil-teacher, I take the liberty to interpret it in a somewhat broader way, so as to include also the numerous preventive measures which are of far greater significance. Surely here an ounce of preventive is worth more than a pound of cure.

Let me first mention some influences, factors, conditions, over which you have little or no control. By *you*, as used in this paper, I, of course, refer to critic teachers and supervisors of practice work of our Normal schools.

1. The Normal school atmosphere

This is determined in a measure by the Board of Regents, in its (1) erection of a suitable building with its essential appointments, (2) selection of a President and faculty who are able to make the most of the conditions under which they are placed. More largely, however, is this atmosphere determined by the various members, each and all, constituting the teaching force. It must be such as will early and constantly force to the attention of each student the fact that he is in a Normal school, that he is to become a teacher of children, that the model or practice school is the center, the pivot, about which and in relation to which all of his work is organized and correlated. In every department and in every subject the model and practice school must be held up as a real model, an illustration exemplifying sound psychological principles applied to actual schoolroom management and instruction. The department teachers (I mean persons instructing in any of the departments of the Normal school and not of the model and practice school) must refer to the model and practice school as a measuring rod with which students may test the value of theoretical discussions wherever found. Every department teacher should not only feel, but manifest a sympathetic interest in the model and practice school, the clinic of the Normal, the educational laboratory.

2. The professional subjects.

The work in these subjects should articulate closely with the course followed and methods pursued in the model and practice school. It can never be unrelated to the work done down stairs except in so far as it may be intended to cover a wider range of conditions. The teachers of the professional subjects should understand thoroughly the course, methods, and materials, as well as chilhood, in each grade of the model and practice school. No lack of co-ordination should exist in this particular.

3. Visitation by pupil-teachers.

In addition to the regular course in observation under the direction of a member of the faculty, students should be encouraged to visit freely the model and practice school with the thought of gaining in-

sight, on the one hand, into the art of teaching and managing children as exemplified by experts, by artists in our profession, and, on the other hand, into child nature as seen in the various grades. The prospective pupil-teacher should be led to enter into the spirit of childhood. This work may be stimulated by the department teachers, but it can be best undertaken by you and should be regarded as a part of your regular duties.

4. High ideals of teaching.

High ideals should be kept before the students from the moment they cross the threshold of a Normal for the first time until they are graduated from the institution. In no department should the ideal recitation and the ideal schoolroom conditions be lost sight of for any other consideration. Students should not only see good teaching in every department, but they should be made to realize that it is good teaching, and shown why it is good teaching to the end that they too may grow to be forceful, logical, and inspiring teachers.

5. Model recitations.

The department teachers should assign lessons daily in a definite, clear and careful manner, and show students how to study economically and effectively to the end that careful preparation, right in kind and adequate in amount, may be habitually made by each member of the class. Next it is essential to test students quickly and thoroughly on the matter assigned. It may be necessary to drill on some of the more important points in the lesson. The students should be made conscious of the fact that the teacher is following a plan thought out and organized before coming to the class. The "lesson-plan" should be impressed. In other words, every recitation in every department should be a model in the true sense, both as to the *what* and the *how* in teaching.

To me it is clear that you, living up to your privileges and opportunities, are the most potent factors of the Normal schools, as they are organized in this state at present, in guiding and shaping the practical work, the art side, of the pupil-teachers, and so in predetermining largely the future destiny of our graduates as teachers. If broad and liberal culture, wide experience, specific training, sympathetic nature, and native fitness for teaching count for anything anywhere in our profession, they reach their highest value, they are used for the noblest purpose, they are attended by the most bountiful fruition in your work as teachers of the model and practice schools.

I firmly believe to natural ability, broad culture and wide experience should be added special training for your work in such an institution as The Teachers' Training College, New York, or The Chicago Institute. The salaries paid for your services well rendered should be equal, at least, to those received by the most successful members of the Normal faculty having equal training and experience. Your positions should attract the best teaching skill in the land. Your work, as I see it, lies along two quite separate and distinct lines; it is of a double nature: (1) You are to be an expert teacher, an artist in the highest sense, both in the teaching and in the management of children. (2) You are to be expert in helping pupil-teachers to master the art side of our profession. The latter is fully as important as the former. You dare not become unmindful of this fact.

Let us now see some of the conditions, factors, over which you have some control. The Normal students are yours for a considerable part of the time they spend in the institution. Part of this time you have them (1) in conferences of some sort, (2) in observation of your own teaching, and (3) in practice work under your supervision.

CONFERENCES.

1. General conferences.

An occasional meeting of all students doing practice teaching may be of inestimable value if conducted in the right way by the right person. Of course, more or less of detail must necessarily be considered at this meeting, but its chief value, its highest purpose, it seems to me, lies in the opportunity it affords for fixing higher ideals of professional work, for creating a professional spirit, for inspiring to greater usefulness and nobler endeavor. The conference should be attended by all members of the faculty interested in the topic under consideration. I do not care to outline fully the work of such meetings, but simply to suggest, in addition to the above, one topic. The course of study of the model and practice school should be gone over with some care, so as to give students a general view of the purpose, scope and sequence of the various subjects in each grade. The best results demand a knowledge on the part of the teacher of the entire field of work pursued by the pupils under his charge. Where teaching is done by so many different persons it becomes necessary for each to have quite clearly in mind the general field to be covered by all. The model and practice school of all schools needs a course of study carefully and completely worked out and understood by all who come in contact with it.

2. Grade or group conference.

This should be called by the critic teacher whenever it is necessary, although a stated time, at least once a week, is very desirable. This critic meeting has a distinct purpose and may be so conducted as to be indispensable to effective work by the pupil-teacher. What was said concerning the general course of study applies here with equal force to the particular grade. A definite course, well understood, and somewhat carefully followed, is essential to that unity of effort, economy of time, and proper articulation and co-ordination of work so often lacking in our model and practice schools.

The matters peculiar to the particular grade, both as to subject matter, methods and child nature should be considered in such meetings. This feature of the critic meeting is most important in the lower grades. This is the place for true, real, first-hand child study for purposes of management and instruction. All persons present are dealing with the same children and should become, as soon as possible, familiar with them. The critic teacher may tell or lead pupil-teachers to observe such characteristics of these children as will enable the pupil-teachers to understand something of child mind, its capacities, powers, interests and peculiarities, to the end that teaching may be more helpful. Of course minor matters of detail in management must be considered, but I fear that this meeting may degenerate if too much time is spent on these things. Emphasize those details, numerous as they may be, which are essential in a good class teacher. At first the pupil-teacher may be painfully conscious that she has many things to

bear in mind when before her class, but later these become so fixed, second nature, as to be properly looked after without conscious attention. They grow to be indispensable conditions. Impress the importance of good class-room habits based on high ideals. The most beneficent influence of critic meetings comes from the strong, inspiring personality, the lofty ideals, and the nobility of character of the critic teacher.

3. Individual conferences.

These must occur almost daily. Pupil-teachers should come to you freely and frequently to talk over their individual difficulties and defeats as well as their victories. You must constantly study your pupil-teachers in order to be of service to them. These heart to heart talks with a community of purpose and interest, that you have with your pupil-teacher alone, the influence of a true friend and real artist upon his pupil, the effect of a strong, inspiring nature upon a young, highly plastic soul under such conditions cannot be overestimated. You know how to criticise each pupil-teacher, how to encourage, how to commend. See to it that the pupil-teacher leaves you, regardless of the mistakes and shortcomings you have pointed out, with a feeling that you have helped her, that you have taken the part of a friend. Never flatter, never discourage. Praise at times; encourage always.

4. Teachers' conference.

The supervisor of practice should hold frequent conferences with his critic teachers, and such other members of the faculty as he may care to invite, to the end that there may be brought about that unity and harmony so desirable in all the work pertaining to the pupil-teachers. I can see that such an understanding may be thus established.

Before dismissing the matter of conferences, I want to emphasize the necessity of an hour during the day when such meetings can be held without inconveniencing anyone interested. An hour after school is dismissed, or before school in the morning, or at noon, cannot fail to leave the impression that these conferences are of little consequence. If they are important, if you make them so, I am certain that time will be found for them.

OBSERVATION.

Time does not permit the discussion of the so-called observation early in the course before practice work is begun, although in that work you have an opportunity to give the Normal students many very valuable suggestions. I regard that kind of observation as very helpful, although its importance depends almost exclusively on you.

1. After practice teaching has been assigned, give your pupil-teacher an opportunity to observe the children, if possible, in the subject he is to teach. When feasible, several days may very profitably be spent in showing your pupil-teacher how to instruct this particular class in this subject. Not that he may mechanically and slavishly imitate you, but that he may have a proper background, a setting for his own experiences.

2. When necessary take the class from a pupil-teacher for a day or more and let him observe you teach. Call his attention to your method, let him see how you accomplish the result he failed to reach,

show him wherein his mode of teaching was wrong. Remember teaching is an art. Showing how, at the proper time, is worth more than telling how to do it.

3. Often when you see a pupil-teacher struggling with a difficulty that he cannot master, take his class for a moment, and show him how, by asking the right question or series of questions, to clear up the matter. It can do no harm if you do it in the spirit of helpfulness.

4. You must observe each pupil-teacher more or less in order to properly help him in his work and to keep your hands on the situation. Know your pupil-teachers and know how frequently your visits should be made to be of most value to all concerned. You know that some pupil-teachers do best when carefully looked after, and others do better work when left largely to themselves. Over-supervision is not only useless, but harmful; it all depends upon the individual.

5. Visits made by department teachers should be reported to you in writing, and your pupil-teachers get such criticisms as you deem wise in each case. The visitation by department teachers certainly has its place and may be mutually valuable, but you are in best position to report all criticisms personally.

6. Should the pupil-teacher fail to profit by your suggestions it might be wise for you to take the class for the remainder of the time and ask him to observe you daily and render such assistance as you may call for. Observations of this kind should be reported in writing each day.

PRACTICE WORK.

1. Find the right person for the right class. You know that a person naturally fitted for primary work may utterly fail if given Algebra or English History in the eighth grade. Know where to start each pupil-teacher and how to find his level.

2. Practice teachers should visit you almost daily to talk over their plans, their failures and their victories. You have a right to know the lesson plan and to criticise it before it is used in class, and you also have a right to hear the outcome of every exercise. In order that you may know your pupil-teachers the better, I believe not all teachers should be moved to another grade at the end of ten weeks, but some, naturally fitted for your grade, whether strong or weak, should be retained another quarter, it may be in the same class. This will materially lessen your anxiety, strengthen your grade, and I believe help the pupil-teacher even more than to chase about from grade to grade. When feasible have some pupil-teachers take work with you for two hours or even a halfday at a time. While all pupil-teachers should observe work in all of the grades including the kindergarten, I am fully convinced that they would get most good from their practice teaching if it were limited to rather narrow lines. We need to specialize more and more. There is a demand for primary teachers, for intermediate teachers, for grammar grade teachers, and this demand is rapidly increasing. Shall we not meet it?

3. The number of pupil-teachers assigned you should not be so large as to render fairly close and helpful supervision impossible, or to prevent your teaching several classes daily. Remember that

you are a model teacher as well as a critic teacher, that you are to maintain a model school as well as a practice school, that you are in charge of a model department as well as an educational clinic. Both are important; neither alone will suffice.

It has seemed to me that we were in danger of emphasizing the practice school, the laboratory side, important as it is, to the neglect and at the expense of the equally valuable model school. If there is too much practice teaching permitted, it ceases to be a true model school. You must do considerable class teaching yourself. If possible meet all of your children in some one or more exercises daily.

4. The department teachers may be of great help to you if they cooperate with you in such matters as selecting teachers, visiting classes and reporting to you frequently matters of mutual concern. They should feel a deep interest in the success of the model and practice school.

REMEDIAL MEASURES.

Little need be said on this point. If the suggestions above have been carried out in the right spirit there will be little to remedy, for all serious dangers and shortcomings will have been prevented. Yet it does occur sometimes that a class is really falling behind and there seems no hope. Under such circumstances, what shall be done?

1. Take the class from the weak pupil-teacher and give it to one especially strong in that particular subject and grade. If possible, keep it yourself until the work is fully made up.

2. Find a strong practice teacher for next quarter for the class that has had a weak one. Know why the former pupil-teacher failed and now select one particularly strong in the characteristic wanting in the former.

3. Department teachers may at times take classes provided they are able to fully adapt their work to the capacity of the pupils in the grade in question. Some department teachers can successfully teach children, others cannot.

4. Cut down the number of pupil-teachers you supervise. This will enable you to do a larger proportion of the teaching and in that way obviate the evil effect to a great degree.

Doubtless you have many suggestions to add to what has been said. The point I wish to emphasize particularly in conclusion is that you always bear in mind the fact that yours is not only a practice school in which Normal students are to acquire skill in the art of teaching and managing children, but also a model school; a model for Normal students to observe and to pattern after; a model for the teachers in corresponding grades of the city schools. Yours is not simply a good average city grade but one which, because of its high ideals and excellent quality of daily work done, is easily in the very front ranks among the foremost schools of the land. You can afford nothing less. Under such conditions the evil effects of pupil-teachers in the grades need concern us little; they can be prevented, or are overcome.

REPORT OF THE LEADER.

The first subject discussed was the "Bearing of the fundamental propositions 1, 2, 3, and 4, in determining what work, if any, now being done, may and should be eliminated." Prof. Patzer did not present a written paper, but with text-books in hand, indicated the work that might be omitted in arithmetic and grammar. As a result of the discussion that folowed, a motion was made and carried that a committee be appointed to recommend phases of work to be eliminated in the subjects mentioned, this committee to report at the Normal Section of the Wisconsin State Teachers' Association. The committee appointed consists of Pres. McGregor, and Professors C. E. Patzer and G. C. Shutts.

The second topic, "Model teaching for observation classes; what means should be used to make this of most value to observers," by Miss Alfaretta Haskell, was then taken up. Miss Haskell emphasized the necessity for observation as a preparation for practice teaching, and the difficulty of carrying it on so as to result in the greatest good to the observers and the least harm to the children. The discussion brought out the differences in the methods of conducting the observation work in the different Normal schools of the state. The necessity for co-operation on the part of the director of observation, the critic teacher, and the observers was the most important conclusion arrived at.

The third paper on the program was that by Prof. J. I. Jegi, on "The means necessary to overcome the bad effects of poor teaching in the grades by pupil teachers."

In view of the importance of this topic and the limited time for discussion it was voted that it be recommended for general discussion in the meeting Friday morning. The time Friday morning did not admit of this, however.

The next topic was "How should the character of the teaching in the grammar grades differ from that in the primary and intermediate grades?" Miss Carpenter discussed the subject informally and showed that all education should be based on the mental activity predominating at a given period. During the period covered by the primary grades the powers of perception and imagination should be appealed to and the tendency to imitation utilized; during the intermediate period memory and imagination are the powers to be especially exercised. The work of the intermediate grades concerns itself, therefore, largely with drill. During the period covered by the grammar grades the reasoning powers are developing, and the work should call these powers into exercise. The need for expression in some form of manual training was pointed out, such expression being provided for in the primary and intermediate grades in some measure, but usually crowded out in the grammar grades by the pressure of other studies, though no less necessary to complete development. Though the paper did not bear directly upon Normal school problems, it would have given rise to fruitful discussion had time allowed it. Since the section had voted to limit the program to two hours, there was no time for discussion.

In view of the emphasis placed upon the work of the Model school

and the Model school teachers by the institute as a whole, it was felt by the teachers in question that the program as printed and the one brief meeting did not give an adequate opportunity for a formulation of the problems of the Model school and the Model school teachers with reference to the work of the other departments of the Normal school, from the standpoint of the Model school teachers themselves. Hence a brief meeting was called Friday afternoon, with a view to appointing a committee to formulate a series of resolutions for that purpose.

An informal discussion showed so great a difference in the condition of the different Model schools, that the brief time remaining was seen to be inadequate to the reaching of conclusions, or even the drafting of a series of resolutions then and there. A committee was therefore appointed to draft such a series of resolutions concerning desirable changes in Model school conditions, such resolutions to be submitted to the teachers of the different Model schools for discussion and approval, and to be returned as soon as possible.

The committee appointed is as follows:
Addie E. Bettes, Superior.
Alfaretta Haskell, Oshkosh.
Emily W. Strong, Milwaukee.
Carol Goff, Platteville.
Carrie J. Smith, River Falls.
Sophia Runnie, Whitewater.
Josephine Fitzgerald, Stevens Point.

NINA C. VANDERWALKER.

MUSIC.

Leader, MAE E. SCHREIBER, Madison.

THE GENERAL METHOD OF THE "HOW," IN THE RECITATION.

GRACE HEWARD, Oshkosh.

If there is one thing more than any other to be constantly kept in the mind of the supervisor of music in common with every other member of the faculty in a Normal school, it is that we are, or should be, preparing students to go out to the public schools of the state to teach music.

In this paper I wish to offer a few suggestions which I sincerely hope will be freely and fully discussed. I shall simply touch upon a few points that appeal to me as being vital, and put some questions to you which I have been asking myself during the time I have been teaching in the Normal school, many of which I have not as yet been able to answer with satisfaction to myself.

Normal schools are being criticised because they do not send out persons properly fitted and prepared to teach music. A large amount of the blame for poor music work and bad singing in the public schools is laid at the doors of the Normal schools. Are such criti-

cisms and assertions just? Are the majority of our students, when they leave the school, capable of taking charge of the music in their grades? I am, I must confess, inclined to answer, "No." Then, what can be done in the Normal schools to change this state of affairs? It is my purpose to give some suggestions as to how this may be accomplished.

Let us consider for a moment with what previous preparation the teacher enters, what does she bring in the way of previous musical training? Very, very little, and that little often worse than none at all. Three fourths of the students who enter the music classes in a Normal school have lived where the musical advantages were limited to the church, Sunday school, and possibly an occasional term of singing school, and these do not always tend toward giving all that could be desired as to correct ideas of music and singing.

As a general thing, the Normal schools of this state provide for two terms of ten weeks each for the music work. Is it possible unless entering with previous training and ability, to equip teachers in that length of time?

When so many of the schools, more and more, are introducing music as a part of the regular school curriculum, the work to be given by the regular teacher, without the assistance of a supervisor, is it not necessary to have a more extended course in music? We must remember that unlike geography, arithmetic, reading and spelling, they have not had instruction in music from the first year of their school life. Then, is it not true that more necessity exists for training in this branch since the average student has had more experience with mathematics than music?

Many students on entering classes do not know a staff from a clef, and yet we are expected at the end of twenty weeks to have prepared them to teach music.

Many students have expressed their desire for another quarter of music in the course, and I feel confident most of them would willingly take all the instruction in music that the required course of study would permit. They, as well as we, realize that in order to teach children to read notes they themselves must be able to read them.

What teacher, without being master of the subject she is to present, can teach with spontaneity?—and are not life, enthusiasm and spontaneity requisites of music teaching?

Another thing, many of my students take professional music before taking any other professional study and before they have had enough theory,—some before they have had any,—to put in practice or even to grasp or understand the simplest educational principles applied to the teaching of every subject. This certainly should not be, for the student works at a great disadvantage.

I have found the necessity of unteaching many of my students. This was brought forcibly to my attention a short time ago. The lecture that particular day had been upon the care of the child voice. I had tried to impress upon the students the necessity of insisting upon the children singing sweetly and softly. One young man who had taught for some time, and seemed much interested in the music work, came to my desk at the close of the recitation and said, "Well, Miss Heward, I have learned one thing today that I never knew before, and that is, that children should sing softly. Why, our insti-

tute conductor has said to us time and time again, "Make the children sing. Make 'em sing till the windows rattle!" That one thing, the subject of sweet, soft singing, has to be forcibly impressed upon our students, has to be told and retold in a forceful, convincing way. It seems sometimes to me that I talk quite as much about that one thing as everything else put together, and yet not a day passes in visiting classes of practice teachers that I do not have to write: "The children's voices are loud and harsh. You must insist upon soft, sweet singing." The trouble is that for many years they have been accustomed to hearing that hard, forced tone which invariably is brought on by making the "windows rattle." Their ears are untrained to soft, sweet tones. Too much cannot be said to them along this line. Make them realize that they are doing the child a physical injury. This appeals to them when many other arguments fail. I know it is natural for children to sing too loud,—they do so without any urging from the teacher; nevertheless it is all wrong and the teacher must be made to know this and to feel the importance and need of continued watchfulness to secure soft singing.

A much vexed question with me is the advisability of having the students take charge of the rote work. I feel some hesitancy in making the confession that heretofore that has not been my custom. Keeping in mind "the greatest good to the greatest number," I have not given any of that work to the practice teachers.

Will you please give me your opinion on this subject? I know they are obliged to take this work when they have schools of their own, and it seems that we are only doing them justice and giving them what by right they can demand in allowing them some experience in rote work before they leave. But how can we intrust the sweet, pure voices of our children to the untrained, uncultivated and many times disagreeable and unpleasant voices of many of our students? Ought this to be done?

When the work in rote singing is being taught and discussed, to show them the proper way of teaching rote songs to children, a class from the practice school is taught before them, the class observing the manner and method of presenting rote songs. They are urged to, and often do attend the chorus practice in the different departments, but is that giving them all the work to which they are entitled?

Quite an amount of time is spent in discussing the kinds of songs to be taught children and a list of books for the different grades is given them.

Another practice which must be forcibly put before our students as an evil is that of the teachers singing with the children. The fact that they must refrain from doing this comes to most of them, I find, as a revelation, as they always have sung with the children. And I ask myself, can we wonder at this when less than a year ago a supervisor of music from a Normal school having listened to a chorus practice in one of the departments, said to me: "Don't you ever sing with your children?" And, receiving a reply in the negative, said: "Well, I suppose it isn't right, but I do love to sing with them, so I very often do. I suppose it is wrong."

Should we not endeavor to make our pupils realize that even though they may not possess the ability to sing beautifully they may success-

fully teach rote singing, so that one possessing the requirements for teaching an other branch is capable of conducting a class in rote singing? I know this to be so. We all from experience know it to be true. I am in favor of having more students take practice work in music during their course in the school. I am not prepared to say,—have all take the work. Here it is largely a matter of choice and no one who says he cannot teach is obliged to try. People learn by doing, and this is the place for them to learn. Here they have what they may never have elsewhere: the opportunity of teaching under the direction of a trained supervisor who aids them with suggestions and kindly criticism. Ought they not to take advantage of this? Many after having left school to teach realize this themselves and say to me upon returning to the school to visit: "How I wish I had had a practice class in music when I was here."

The question which comes to me is this: Is it fair to the Normal school, to the teacher of music, to the students, to the school in which they have charge of the music, for them not to have a practice class in music? Were any of them certain of not having to do this work it would be quite a different matter; but one never knows when this may be required of him.

I find an inexperienced teacher in teaching young children has to be warned against crowding the subject matter; the child mind refuses to assimilate anything which it does not readily understand. Every primary teacher knows that instruction in music, as in everything else, must be oft repeated and thoroughly taught.

Quite the reverse I find to be true in the work of the upper grades. The teacher often fails to realize how much work can be accomplished in a recitation of fifteen or twenty minutes, provided the work is well planned, the subject matter well in hand, the attention of the children held and time not occupied in unnecessary talking. In the latter an inexperienced teacher is apt to fail us in music, perhaps more than in any other subject. If the work is well directed and properly planned the children will accomplish much with few directions.

Many of our students have a wrong idea, in some of them firmly rooted and difficult to change, as to the treatment of monotones, believing them to be hopeless, incapable of being taught to sing, a drawback and nuisance to the class in general; and so they are forbidden to take any active part in the work, and the teacher drops the matter there, believing it to be utterly useless to attempt teaching them, a sheer waste of time and patience. I have had them evince the greatest surprise when I have made the assertion that they should be allowed to sing,—not only allowed, but encouraged to sing,—and that as a rule they can, with proper treatment, in a short time be converted and brought into the fold of sweet singers.

Should we not make a plea in behalf of these monotones who, with but very few exceptions, can with proper training and treatment be taught to use their ears and voices?

Should it not be a part of our work to impress our students with the power and magnetic influence of a teacher's voice over children, not alone in singing, but in conversation as well? Are not the music classes the places where this work should be done?

Is it possible to send pupils from our classes with a desire to broaden the knowledge there acquired, with a desire to teach themselves by reading helpful and suggestive articles in books and magazines, by availing themselves of every opportunity of hearing good music and so keeping in touch with all progressive teaching?

One more point before I close. Would it not be well, if we find any in school particularly endowed with musical ability, to encourage them to specialize?

I have not been able in a paper of this length, nor have I made any attempt to treat any of these subjects exhaustively. It has been my intention to throw out some suggestions for discussion. I hope we may have some of them, if not all, discussed.

CAN ALL STUDENTS BE SO TRAINED AS TO MAKE THEM EFFECTIVE TEACHERS OF SINGING?

F. F. CHURCHILL, PLATTEVILLE.

To this question my answer would in most cases be, "Yes." In music, as in all other branches, there will always be some failures; but as a rule I find that the successful grade teacher is a successful music teacher when under proper supervision.

The idea seems to prevail in the minds of many that unless one is endowed with a great amount of natural ability, he cannot acquire even a thorough practical knowledge of music.

However, conclusive evidence of this error may be found by visiting any public school where music is taught according to correct methods and educational principles. It is true that natural aptitude does give one pupil the advantage over another; but no more so in music than in any other branch, as I believe the proportion of failures in music is no greater than in language or mathematics.

Of all the long list of studies music has perhaps received the least attention until very recent years; but happily the value of musical training is now recognized by our best educators and is not only rapidly gaining the front rank in our school curriculum, but is considered a necessity.

Why a necessity? Because of its influence for good and for refinement with the boys and girls of this nation; for in no way can the heart of the child be reached more effectually than through the medium of song.

It is said "that next to religion music is one of the greatest civilizing powers."

People learn music both as a science and as an art precisely as they do other things.

If students are going to become effective teachers of singing in our public schools they must first have a systematic course of instruction along this line, and be required to pass a satisfactory examination the same as in other studies.

This, I think, is the main trouble: music has not been compulsory, but when it is, and school boards say: "We must have a teacher who knows something about music and can teach it," you will find that we shall have more successful teachers of singing.

With our graded methods of today the art of teaching is so simplified that anyone who can teach a class to read from an ordinary school reader can teach them to red music.

It is a wrong idea to think that a good singer is necessarily a good teacher. To be a good singer is one thing, and to be a good teacher of singing is another.

There are many who possess a great amount of knowledge but cannot instruct others.

The grade teacher is not expected to do the singing but she can be trained to guide the children in learning to sing and read intelligently.

We now come to the second part of this question: "Will the time and effort necessary to secure this training be the best possible expenditure of time and effort for students and teachers?"

If music is going to be taught in our public schools simply as a means of recreation and pastime, my answer would be, "No;" for if our ideals are no higher than that, I believe we would be wasting our time.

But does not the teaching of music mean more than that?

Music if properly used becomes one of the most powerful factors for good at one's command.

It is one of the best and most blessed of all of the gifts of God. It has done much for the uplifting of mankind.

Did not music play a prominent part in two of our late conflicts? When the enemy were pressing hard upon our boys in blue, and when by superior numbers our lines were broken, the two songs, "Rally Round the Flag" and "Star Spangled Banner" did more towards rallying our forces than all the threats or commands of the officers. Music is an important part of our life. It pervades everything; in fact, no gathering seems complete without it, and to my mind there is nothing that contributes more largely to the present interest and needs of the public school than music.

From an educational standpoint it is one of the greatest forces in maintaining discipline. It teaches accuracy. It promotes pride and self-respect. There is no better way to curb our unruly boy than by interesting him in music. Let us see what some of our foremost men of the world have said about music.

Plato said: "Music is a moral law. It gives a soul to the universe, flight to the imagination, a charm to sadness, gayety and life to everything. It is the essence of order and leads to all that is good, just, and beautiful." Luther said: "Music is one of the best arts. It drives away sadness, quickens and refreshes the heart. It is half the discipline, and makes men more gentle, more modest and sensible. A schoolmaster must know how to sing, else I will have nothing to do with him." Mr. Gladstone is quoted as saying: "They who think music ranks among the trifles of existence are in gross error, because from the beginning of the world down to the present time it has been one of the most forcible instruments both for training and arousing and for governing the spirit of man." It is said that Milton listened to his organ for his most solemn inspirations.

Thus we see that music has always exerted a powerful influence for good, and this question of who shall teach it should be settled at once. As long as the grade teacher is not required to teach music

you can rest assured that she will not trouble herself about preparing for it.

I believe the time has come when music should be placed where it justly belongs, and that is on the same plane with other branches; and we should require the grade teacher to teach it as she does other branches of study. When this is done, I am sure that the time and effort necessary to secure this training will be the very best possible expenditure of time and effort for students and teachers.

REPORT OF LEADER.

In the conference of music teachers in the Normal school institute, it was decided to lay out so far as possible, by a careful application of the four fundamental principles to the subject of music, a course indicating what should be taught in music in the Normal schools. The following general outline was the result of the conference:

The pupils in a Normal school should be able—

I. To correctly interpret the simple musical page.

II. To teach the same to others.

To correctly interpret the simple musical page implies

To know, recognize, interpret, and express:

I. Rhythm.

1. Feeling for rhythm in all its forms.

2. Recognition of all the symbols. a. Relative length of notes and rests. b. Metre signatures. c. Measure. d. Bar. e. Double bar. f. Dot. g. Tie. h. Hold. i. Triplet. j. Terms indicating variations in movement.

3. Interpretation and expression of the foregoing.

II. Melodics.

1. a. Should know major, minor, and chromatic scales. b. Intervals. c. Part singing.

2. Recognize and interpret use of—a. Staff. b. Cleff. c. Key signature. d. Accidentals.

III. Expression.

1. Expression gained mainly in teacher's practice by appeal of teacher to emotional side of pupils.

2. Must recognize marks of expression.

To teach the foregoing to others, the pupil teacher must know—

1. The subject matter.

2. Must know what to teach as determined by the four fundamental principles in their application to the subject matter.

3. Must know the how, or the psychological principles underlying all teaching and especially as applied to music.

4. Must be able to present the subject to the pupils by means of right amount of testing, teaching, and drilling.

The following principles are the most important in their application to the teaching of music—

1. The teacher must meet physical conditions—body and mind must be in partnership.

2. The teacher must realize that the pupil gains the raw material of knowledge through senses,—hearing and sight mainly concerned in music,—quickness, accuracy, and discrimination sought for.

3. All new knowledge is gained by means of knowledge already in the mind.

4. The logical order of learning: From percept to concept; from simple to complex; from the thing to the symbol.

5. All knowledge comes from self-activity.

6. The first steps of any art must be learned through imitation.

7. The underlying principles of drill—repetition with attention. Any drill exercise is worthless which does not secure attention and best efforts.

8. Learn to sing by singing.

9. Principles of attention, principles of interest, principles of apperception.

IV. There must be a certain amount of practice work, putting these principles into practical application.

The foregoing course was carefully discussed, step by step. The outline shows the result of the discussion and the best judgment of the majority. There was a general feeling that better results could be obtained if more time were devoted to the subject of music. At the same time the preponderance of opinion was that it was not a question of more time, but a better use of the time already allowed. It was admitted that by a careful application of the four fundamental principles to the subject of music, some things now taught in the Normal schools could be eliminated.

It was agreed to give the foregoing course a fair trial, and at the State Teachers' Association in 1901 to meet for further consultation, and to report on the results obtained. Miss Grace Heward of the Oshkosh Normal school, was elected chairman for that meeting.

MAE E. SCHREIBER.

PHYSICAL TRAINING.

Leader, W. H. CHEEVER, Milwaukee.

PURPOSE, SCOPE AND PLAN OF WORK OF PHYSICAL TRAINING IN THE NORMAL SCHOOL.

LORRAINE TRUESDELL, River Falls.

That the student body of any school will be characterized by special deficiencies resulting from nationality, environment, occupation, and, in short, all those influences and conditions which might be summed up as "Nature's legacy," it is needless to affirm. These deficiencies, of course, imply special physical needs, and in a Normal school it should be the work of the department of Physical training to consider these physical needs rather than the pedagogical equipment of the student.

In our own institution, which draws chiefly from the rural districts and smaller towns, the typical student of either sex when he presents himself is of robust health, with such faults of manner and bearing as are incident to youth, or resultant from a quiet life and unfamiliarity with social forms. Though having undergone some

changes since the first years of my experience, my purpose as regards this typical student is as stated below:

First, to place within his reach the means of physical culture; that is, physical work of such a character as to be corrective and educative to the body without calling to the attention of the individual too noticeably defects such as are revealed only by test and measurement. The body should be educated into subjection, and so far as possible trained into obscurity, the end being,—though, alas, often theoretical rather than actual,—that through our effort in his behalf our typical student shall be characterized by self-possession rather than self-consciousness, elasticity rather than heaviness of movement, suppleness instead of stiffness, self-control rather than nervousness, repose rather than restlessness, and ease of bearing under all circumstances rather than awkwardness; and with the removal of these hindrances should result a natural, alert responsiveness, with ready powers of expression, because the body serves as it should in the capacity of "obedient servant of the mind."

Second, to furnish through the years of mental application a means to the maintenance of health by placing the student regularly under conditions where the body is released from the pressure of conventional dress, the limbs are given perfect freedom, and attention is called to correct adjustment of all parts of the body as a foundation of health. That under supervision he may be led to take such exercise as shall tend to health of muscle and increased vigor in the discharge of all the natural functions of the body.

Third, to increase mental vigor, that the reflex influence of the work in the gymnasium may be felt in every department of the school. That through the development of the muscular co-ordination, calling for the exercise of the powers of attention, discrimination, inhibition, will and execution, a corresponding mental development results is easily demonstrable even to those unfamiliar with the verdicts of expermental phychologists. Observation bears out the statement that a person lacking in muscular control and co-ordination, also lacks mental power, and as his skill in the execution of complex physical exercises increases, he also displays increased intellectual keenness.

Fourth, that through inclement weather and all seasons a ground may be available for recreation, where such games should be taught, supervised and encouraged as shall employ the greatest number of players, and shall stimulate the dull, slow, phlegmatic student to alertness, ready decision and self-forgetfulness. I believe that the practice of organizing and encouraging the picked basket ball teams to go out of the institution and compete in physical prowess with teams of like calibre should be confined to the male portion of the school, and that much care should be exercised that the preliminary practice does not result in the monopoly of the gymnasium to the entire exclusion of those most in need of the healthful stimulus of friendly competition.

Ladies' basket ball matches outside of the school are eschewed on the ground that such contests tend to foster indelicacy rather than to contribute to refinement or general culture, it being in my opinion absolutely without elevating or educational influence and implying a misconception of the prime purpose of physical training in a Normal

school which should be to fit for competition in the intellectual, rather than for combat in the athletic field.

Fifth, to add to the professional efficiency of the student. At the present time a theoretical and practical knowledge of some standard system of physical training being essential to the equipment of every teacher, it is in harmony with the purpose of a Normal school to furnish such equipment, but when we consider that few will use gymnastics without supervision, or for a short time each day for recreative and corrective effects, we must conclude that it is not wise to attempt to prepare thoroughly in the theory of physical training. The ability to correct posture, a general idea of the means to be used, the skill to outline a day's order and command a lesson clearly, being about the maximum of equipment for the average student.

Scope of work in the Model Grades.

Here, as elsewhere, it is most important that we consider the material, the end, and the method of attaining that end, and in arranging work for the Model grades the determining factor is the age of the child and the demand of his particular growth period.

The work begins in the kindergarten with a systematic effort to develop the sense of rhythm by simple exercises of motion.

In the primary grade in accordance with the positive demand of the growing muscles for exercise, animating, restful movements are used to counteract the effect of compulsory sitting. When possible the work of the Model grades is performed with musical accompaniment.

In the intermediate grade the exercises must again be in accord with the demand incident to growth, such as tend to good carriage and ease of bearing, also contests and games involving skill and activity.

According to Dr. Krohn the period of greatest possibilities in physical development is from fourteen to twenty years of age. The great need of exercise during this period is for the purpose of inciting strong activity of heart and lungs and to be of any real benefit must conduce to the increase of skill, daring, and courage.

Scope of work in the Normal school.

The requirement of the department is that a student shall complete a course of one year before graduation. Credit for the maximum of required work however does not excuse from further work in the gymnasium. For two years we have through the winter terms made physical training compulsory for all except those excused for special reasons, but as the number of students in attendance is constantly on the increase the result of this plan is so large an enrollment in classes that our small dressing rooms are entirely inadequate for the wardrobing of the number of suits, to say nothing of the entire lack of facilities for caring suitably for the articles of apparel which every lady must reckon in a day's attire.

Another obstacle lies in the fact that ordinary janitor service is inadequate to the proper care of a room where two hundred and fifty persons exercise daily, and where mats which take and retain dust are brought into frequent use. Though the nightly sweeping with damp sawdust reduces somewhat the surface accumulation of dust, unless the floor is often thoroughly scrubbed, and the mattresses vigorously beaten whenever used, there is enough dead and harmful mat-

ter left in accumulation to be stirred into circulation by the movement of many feet to be very harmful to the throat and lungs of those who inhale it, and more than ordinarily harmful under conditions where respiration is increased by active exercise.

Furthermore, a large percentage of the student body is transient, the attendance of those who complete the Normal school course usually being intermittent. This irregularity not only interferes with the grading of the work, but with other adverse conditions render it impossible to furnish positive proof of the really wonderful results that may be brought about under conditions favorable to proper grading, regularity and continuity of the work throughout the entire school life.

Plan of work.

That the work may be so varied as to prevent its becoming monotonous and that interest may be sustained, it should include, in limitation, all of the more refined forms of physical exercise which would be comprehended in an extensive course in physical training: gymnasium tactics; corrective exercises according to the Swedish system; dancing steps; and much rhythmical work.

According to progression hand apparatus should be used; clubs, dumb-bells, wands, hoops, rings, etc., in as systematic order as the uneven grading will permit. Through the colder months when out-of-door exercise is impossible, heavy apparatus should be brought into requisition for men's classes, but should be used with much caution by young women. Somewhere should be introduced for women a course in Delsarte and what may be termed aesthetic gymnastics.

The conditions which surround the work in a Normal school have led to the conclusion that time spent in making physical examination and in administerng tests which reveal and emphasize physical defects and weaknesses, does not contribute to the physical welfare of an already morbidly self-conscious person. One in need of special physical prescription is out of place in a Normal school. The state requires that any person admitted must be of sound bodily health, and a person in need of medical gymnastics would not belong in that category. Would not the results be immeasurably better if money expended in the purchase of expensive anthropometric instruments were used in employing a competent pianist for a day or two each week to furnish music for rhythmical gymnastics? The feature of good music contributes more than any other toward sustaining interest in the work of the gymnasium, and the tonic effects upon the nervous system of rhythmical movements, is unquestioned.

Would we not better look at existing conditions reasonably and work for results within the range of possibilities? That system has not been founded which will counteract or overcome entirely the effects of heredity, occupation, etc. The question which may fairly test the efficacy of physical training is, does it not raise to a higher plane mentally, morally, and physically? Was not Socrates right when he said—"It is disgraceful that any one through want of attention to these matters should grow old without seeing what kind of a man he may become by making his body as well developed and robust as possible, and this no one can do who does not pay proper attention to these matters, for they do not come of their own accord and unsought."

PURPOSE, SCOPE AND PLAN OF WORK IN PHYSICAL TRAINING IN A NORMAL SCHOOL.

JULIET V. YEAKLE, Superior.

Purpose: (a) Educational value. (b) To help the student keep and acquire a sufficiently well-developed body to withstand the strain of both mental and physical work. (c) To give the student a working knowledge of gymnastics.

(a) Educational value:—

It is certain that no one more than the physician or the physical educator is impressed with the close relationship existing between mind and body, the mind influencing the structure and functions of the body and the body determining conditions of the mind; the mind acting as an intelligent guide, influencing the sensations, the movements, and the organic functions of the human body; while the body, through well-directed and orderly muscular movements, aids in the growth and development of the constitution and condition of the motor brain centers.

Through the cultivation of right motor-habits we come to possess greater accuracy, less fatigue, and an economy of human action.

The organism that is well-trained can adjust itself to every possible condition of action and circumstance; power for self-direction and self-control is developed through the strengthening of the will; the individual learns to inhibit or control energy, to concentrate his attention for strong action which is to follow. All of which is of vast importance and forms a large part of the educational value brought about through physical training.

The educational value of systematized muscular exercise is now demanding a larger recognition than ever before, and when our educators, instructors, and trainers arrive at a further realization of the beneficial effects to the mind through bodily exercise, then will our pupils be brought nearer to the acquirement of a well-developed body which can withstand the strain of both mental and physical work.

The late Du Bois Reymond, for many years professor of physiology in the University of Berlin, said,—"Man is adapted to self-improvement by means of exercise. It makes his muscles stronger and more enduring; his skin becomes fortified against all injury; through exercise his limbs become flexible and his glands more productive; it fits his central nervous system for the most complicated functions; it sharpens his senses; and by it his mind, reacting upon itself, is enabled to augment its own elasticity and versatility."

It is very evident that mental health and power are developed through muscular exercise; for this involves motor-acts—voluntary muscular movements—which are controlled and animated by the central nervous system; and we know that our motor-acts, however small, are the result of volition, judgment, and feeling.

(b) To help the student keep and acquire a sufficiently well-developed body to withstand the strain of both mental and physical work.

Keeping well in mind the educative means of physical training, we come more fully to a realization and a recognition of the hygienic and corrective ends, the strengthening and developing of the whole mus-

cular system, the stimulatng of the functonal activities, the correction and prevention of tendencies toward abnormal development, and the grand result,—the entire body developed into a harmonious whole under the perfect control of the will.

Where could we find in the realm of argument and of reason a more desirable and convincing basis upon which to build the structure of a sound and thorough education, and for raising this branch to the dignity and privileges of a co-ordinate department of education?

No one is disposed to deny the efficacy of muscular exercise to promote general bodily health and vigor, and one is readily convinced that the mind,—the functioning of the brain,—shares largely the good results obtained through this muscular effort.

He who would have health, would have exercise, would have his whole muscular system strengthened and developed, would recognize the value that such training properly conducted has upon the stimulating of the functional activities, not only of every group of muscles in the body, but of every organ. Realizing his limitations, found not only inherent in weak organs, in weak muscles, and in inability to correctly co-ordinate at first even simple movements, he would seek for causes and find them the outcome of bad and awkward motor-habits which had grown out of faulty positions in sitting, standing, and in walking; thus, being awakened to the full consciousness of his needs, his deficiencies would present themselves more in the light of actual deformities, and he would endeavor to correct the stooped or round shoulders, or the curvature of the spine. He would see himself in a clearer, keener, brighter light, and this would add new interest to the otherwise dull or mechanical feature formerly associated with "movements."

Exercise is necessarily monotonous to the man who has but few muscles to use, few movements to make, and therefore he is not inclined to seek exercise where he lacks volitional control of many movements. In his eager pursuit of knowledge to be obtained from books, with his time limited and the demands upon his pocketbook great, with a loss of the natural desire and love for movement which he felt to be a part of his life when a child, he is apt to look upon the time absorbed from his dail curriculum as a loss, if spent upon a thing he can obtain incidentally. He argues he gets enough exercise coming and going from school, in walking from room to room and in going up and down the stairs.

Had physical training been a part of the course of study from which he passed from grade to grade, had it been an integral and necessary branch, placed upon the same basis as the "good, poor and indifferent" work of his mental requirements, which formed the sole purpose of his school-life, he would not have arrived at his twenty years with an awkward gait or hollow chest, health impaired, physically lazy and wholly insensitive to the demands of his health, and disinclined to take even the moderate amount of exercise which is necessary to its maintenance.

Such a mental and physical state in the form of a "Normal student" —especially of our girls—presents itself as a problem to the director of physical training.

Not all are of this weak, indifferent type; there is the healthy, well-developed, enthusiastic girl, who has always had much physical free-

dom; who has, consequently, not lost her natural love for movement; and who has, therefore, never been sick; she has rowed, played tennis, golf, and basket-ball, and is ready and anxious to demonstrate her skill in the gymnasium.

But, alack and alas! she drills in the same class with the girl who shows the opposite tendencies in every way; whose disapproval of gymnastics is very evident. She does not look well nor strong, and there is a lack of interest shown by the very expression of the eye and face. She has a headache and she does not know why. Her back aches and she knows less about that, feeling sure that all that is to follow will only add to her discomfort. If she can make up or conjure the slightest excuse with a plausible ring, she is most content indeed.

The education of this would-be teacher,—the Normal graduate,—is evidently very deficient; not being in sympathy with this branch of instruction in the Normal school, such will be her attitude toward the subject afterwards. She will have before her only the improvement of the child's mind; and, if the employment of physical exercises is left to her discretion, she will be rather inclined to leave them out of the daily program.

There are many reasons why one possessing a weak constitution, or functional or organic derangement, should not become a teacher of the young. Her weakness, showing itself upon feature and form, having its effect upon her disposition and general health, must have its reaction upon the members of her class.

She looks blank, both feature and form; to the quick, discerning eye of the child she stands without a message,—she has no message to convey to him just as long as she stands there hollow-chested, pale and inanimate, putting her questions in a weak or discordant voice.

Until she learns how to stand, and to do so possessed of healthy organs, strong and enduring muscles, a pleasant look upon her face, her nervous organism well under control, her motor-habits well-regulated and showing an economy of muscular force and action in graceful movements, she will not only fail to gain the respect of her class but may hold herself responsible for the bad reactionary influence her physique has had upon them.

Emerson says:—"How can I hear what you say when what you are is thundering in my ears?" Another writer tells us,—"The tell-tale body is all tongues." And Martha Fleming on the "Expressive use of the body" writes,—"Imitation is a potent factor in education, and action is one of the first things imitated. Action seen in the body of another is the kind of stimulus which most readily produces imitation. Gesture is truth to the child. He does not hear what you say; he sees what you do. The teacher's habits of sitting, standing, walking, breathing, habits of speech, quality and use of voice are imitated by the child and become permanent. You may tell a child to sit up, to stand up, or walk erect, but if you do not sit up, stand up, or walk erect yourself, your precepts fall upon deaf ears."

With this thought in mind, I believe, as far as possible, such students as are unable to take part in the program of gymnastic work and must present a doctor's certificate of inability, should be excluded from the school. The work there is not for them. But, to one who has no organic trouble, whose muscular organism is somewhat de-

pleted, who would improve under influence of corrective gymnastics, and who may need some individual attention, including the usual thorough examination and measurements that are taken, upon such a one our gymnastic efforts may be well spent.

The instructor should be the confidante of the student and advise her in all matters pertaining to her personal hygiene and health. There should be such an intimacy existing between them that the student would not hesitate to seek her advice upon all matters of health, especially where a doubt remains as to the advisability of the exercise.

The instructor should observe closely the effect of the exercise, and not only watch for the good results but keep in mind the differences existing in constitution, temperament, ability, nervous organism and general control, hereditary tendencies and the like, which make up the working element of her class, noting the idiosyncrasies of each pupil. She should know the number of studies pursued by each student and see that she is physically able to undertake and carry out daily such a program.

(c) To give the student a working knowledge of gymnastics.

The main purpose of all Normal teaching is the attainment of the highest possible teaching power. Each department works with greater success when the co-operation of all the other departments is in evidence, when it has full recognition and advantages of equal rank with all the other departments.

Gymnastics, like any other branch, involves certain theories and methods, and the student should not leave the Normal as a graduate without a definite knowledge of the aims and value of physical training. She should have a general idea of the means to be used, and be able to show an intelligent use of her knowledge by practice work in the school.

It is certain that every student who leaves the Normal school will not engage in gymnastic work to any great extent, at least, not without supervision, but every teacher should be trained and qualified to teach at least such physical exercises as may be practiced in the schoolroom. She should possess a knowledge of the laws of health, hygiene of the schoolroom and such a knowledge of the theory of gymnastics as is absolutely necessary to aid in a practical way.

Scope:—

We find that muscular exercise is used for various purposes; some resorting to its use merely as recreative, others as educative and still others as a corrective; one may hold each and all of these purposes in mind and combine them to their good; but the motor element is the means employed, and the end sought is generally so far reaching in its results as to lay the foundation for a healthier mental training through a sounder bodily training.

We find various forms of motor-activity which, if included under the head of physical training, would represent more of the specialized form. The introduction of the military drill, manual training, and of sloyd, into many of the city schools has been the means of developing physical training of a more general nature.

Where one has participated for any length of time in any one line of motor activity, the result has been disastrous, and such should not be substituted for the more thorough-going and far-reaching results ob-

tained from exercise for a more general nature. That is to say, gymnastics, including athletics, should be practiced as well as the manual training, sloyd, military drill, or any other form of motor activity employed in a special or professional sense, as that of the actor, fencer, musician, the wood-chopper, the plowman, or certain lines of work within the domain of the housekeeper; for reason and experience teach us that the specialized work tends to produce awkwardness and deformity.

Play, of itself, forming as large a part of our school-life as it does, could not be a substitute for corrective work in the gymnasium. Play is apt to accentuate the deformity, for the child naturally favors the use of the strong muscles. Yet play is held by some to correct the physiological faults resulting from schoolroom work. Is this so? and to what extent?

We do not wish to gainsay what our observations and those of others have taught, that play is educative to the child, to the youth, to anyone when rightly participated in. I thoroughly agree with Dr. Fitz, that through play we come to realize a better preparation for life. He says:—"In play the child is the unit of force; he initiates his own conditions. His limitations are self-imposed. His self-control lies in execution rather than in inhibition. He is concerned with self-expression rather than with self-represson. Play thus relates itself to the truest conception of education, the development of power, the power of the individual to act as a self-directed unit in civilization. The self-control gained by play acts immediately, strongly, and honestly in response to conditions as they are presented in life."

The child must be busy, and if something is not planned for him to do he finds his amusement in the resources at hand. Experiment has proven that much of the energy and vital force expended by children in an immoral or destructive way upon the street, when turned into a public playground or gymnasium where the child may indulge to his heart's content in building and in tearing down, in climbing, jumping, running, playing games, or in bathing and swimming, the discipline and the order of the youngsters when upon the street is not only better but the child himself is morally and physically stronger.

In a general way I have tried to cover the scope of this work. Its influence, its effects, its results, its field of work and its principles cover over so wide a range it is difficult to define the limit.

Plan:—

(a) A wiser adjustment of program to the best working hours.

This should be striven for and arranged as nearly as possible. There should be at least no work done immediately following the noon recess. I have obtained the best results between eleven and twelve, and immediately after school, or the period just before dismissal.

(b) The employment of such methods as are natural and appropriate to the age, sex, and individual peculiarities.

These three points, age, sex, and individual peculiarities, should receive more or less consideration; according to the age in the lower grades, and according to sex and individual peculiarities in the upper grades and Normal department.

In the lower grades,—first to sixth,—begin with exercises which demand the use of large groups of muscles with very simple combinations; later, expect greater accuracy in execution with more difficult

problems in co-ordination. Sense-training through games which test the sight, hearing, or feeling. Later exercises for endurance, skill, alertness; plays requiring definite actions, especially where one of several actions must be quickly decided upon.

Systematic marching, and running with exercises given to improve volitional control.

In the fifth and sixth grades begin work upon the apparatus.

The work in the seventh and eighth grades is distinguished largely by sex.

The boys of these grades seem to desire to work for strength, with an admixture of skill. Quite a great deal of apparatus (heavy) work may be used in the boy's classes, but the progression should be steady and gradual, never to the point of fatigue. Walking, running, breathing exercises, and exercises witn the lighter apparatus should form the general program for the rest of their work, including games which require quick definite action and skill.

The girls of these grades should be given the lighter, more fanciful exercises with systematic marching and running, demanding a definite purpose.

The sexes of the Normal department should drill in separate classes, as their work differs greatly. Both should be so clad as to allow absolute freedom, with no constriction of neck or waist, the collar being low and stays left off.

I am inclined to favor a large share of recreative work for Normal students, especially for the girls; for the student has been under a great strain of attention and is already taxed by mental work, and the very fact of this conscious exercise of the will is fatiguing; to apply it further would partially defeat our object. For this reason the work should be planned below the school mental intelligence.

Normal students are inclined to take all their work too seriously; every effort should be made to make the gymnasium a place where, in coming, they are led to forget the "all-important" duties which engage the majority of their time as students. The instructor herself should not fail to infuse into her work a personal element of interest and enthusiasm. The students soon catch this spirit and carry it away with them.

Under the head of "individual peculiarities" we may place anthropometric measurements, obtaining through this means some of the individual and personal needs of the student. Not only should each Normal student of both sexes undergo a physical examination, but the grades as well, the measurements to be taken twice in a year and plotted upon charts for that purpose. Each student should be given her chart and where necessary individual and special exercises are given.

It is not a difficult task to interest the grades in this part of the work; they love to make comparisons and watch for the change or improvement in one another; they are thus led to observe and look for faulty positions in sitting, standing, and walking. The regular teacher herself should be on the look-out for this and show an interest in their charts.

Although this is a very general and brief outline of a plan, I have endeavored to keep before me the improvement of the individual, and to keep in mind as well its fitness to the individual. We study the

child in the educational world today, and so should we do even more of this in our physical training.

(c) Grading, as in any other branch:—

Here we are confronted by many difficulties. Pupils are placed together, stand side by side, whose degree of efficiency, whose natural ability, natural tendencies and constitutional differences, as well as age, if marked to a standard would take so wide a range as 0-100. Not all of these degrees of efficiency could come under consideration, nor would it be advisable that they should, had we the choicest periods of the day and nothing to interfere; but a standard of progression from term to term, and from year to year, could be much more logically and systematically worked out and lived up to than can ever be the case according to the present arrangement.

WHAT SHOULD BE THE PURPOSE, SCOPE AND PLAN OF WORK IN PHYSICAL TRAINING IN A NORMAL SCHOOL?

ISABEL F. WALKER, WHITEWATER.

For some years physical training has been establishing its claim to be a real educative force, and as such has been given a more or less prominent place in the curriculum of the higher institutions of learning and the public schools of this country and other countries. Its general aim is the physical, mental, and moral well-being and development of the individual. Apart from this general aim, what should be the purpose of the department of physical training in a Normal school? Should it differ in any respect from that of the college or other school? The answer to this question is a decided affirmative. The college, in all its training, thinks of the individual student; the Normal school must consider the student not only as an individual but also in his future relation to the children of the public school in which he is preparing to teach; and this is no less true of the department of physical training than of other departments. It is by no mean the function of the Normal school to prepare special teachers of gymnastics, but since exercise is so essential to the welfare of the growing child, and since it is impossible to place a trained specialist in every school, even if it were desirable to do so, the students should be led to appreciate the value of physical training to the children for whom they will become in large measure responsible, and should be able to instruct them rationally in some course in free gymnastics. The purpose of the department, then, is seen to be two-fold, to benefit the individual and to equip him for teaching.

The scope of the department is very broad. It should give students such a knowledge of personal hygiene, supplementary to that of the regular course in physiology, and so influence them that they will take better care of their health, realizing that only as they bestow proper care upon their bodies can they hope to do their best work as students, or be most influential as teachers. It should incite to active participation in athletic sports and games in addition to the regular prescribed gymnastic work. It should call their attention to the fact that for generations the sensory system has been receiving special at-

tention in the schools at the expense of the motor areas of the brain which need to be developed for the improvement of the executive powers. It should show that judicious exercise will counteract many of the evil effects so long continued sitting and help to conserve the general health; that it will rest and refresh tired and listless children, thus improving the quality of their mental work; and that it will be an aid in the discipline of the school by affording a natural vent for the superabundant energy and animal spirits which must be worked off in some way, legitimate or otherwise.

To realize the first part of the purpose, i. e., the benefit to the individual student, the work should be directed primarily towards the improvement of the carriage of the body, showing the pupils at the same time what exercises may be used for the same purpose for the children to come under their care. My reason for placing the emphasis on this phase of the work is this:—In the correct posture each organ of the body is in its proper position and in right relation to every other organ, thus permitting the natural functions of the body to be performed with the greatest ease. This is not true in the cramped, distorted positions assumed by the majority of the students with whom we come in daily contact, and in many cases it is evident that the organs must all be displaced and performing their work under most unfavorable conditions with the resultant headaches, backaches, and other aches which are all too familiar to the heads of physical training departments. If we can correct these defective standing and sitting positions, we have helped the individual to make great progress towards a condition of restored health and renewed vigor, because the organs are again free to perform their natural functions unimpeded.

Not only does improved posture react favorably on the general health but it also has its influence upon the character as well. It is a generally accepted fact that so closely are mind and body linked together that the body becomes in time the external manifestation of the mind, and the mind in its turn is affected by the habitual attitude and actions of the body. This being true, will not a change from a careless, shuffling gait to an habitually free and decided step begin to change the character? In at least this one particular the individual must cease to be careless. If we can train a person whose motions are angular and jerky, with corresponding angularity of temper, to rhythmic activity and ease, will not the character be likely to change and manifest itself in calmness and repose of manner? The consciousness of a well-poised body whose motions are completely under the control of the will, gives one self-confidence and a sense of dignity and moral worth, and what can be of greater value to a young teacher appearing before her class than this same quiet, unassuming self-confidence? The children instinctively feel its influence and have far more respect for such a teacher than for the slovenly, shuffling, awkward one, and will comport themselves accordingly, thus making the teacher's work easier from its inception.

The preparation for the work of teaching gymnastics should be both practical and theoretical. The practical part should acquaint the students with a large number of exercises suitable for use in the schoolroom with an intelligent idea of the effects of these exercises and their application, and also with a number of games and plays. It should give them opportunity to observe the class-work of the pupils

of the model school, and also to conduct it under supervision. In the theoretical work, which should follow the work in elementary physiology and some of the professional work, they should acquire some knowledge of the history of gymnastics, of the location and action of the principal muscles of the body, of the growth and development of children, including the relation between physical development and mental ability, of the common physical defects of children and the exercises best adapted to overcome them, and of the relation of plays and games to education. They should also be given some idea of the various systems of physical training with their basal principles, and be required to prepare lesson plans. It would be well if they could also acquire some knowledge which would enable them to deal intelligently with the common emergency cases which nearly every teacher must meet.

"If to do were as easy as to know what were good to do, chapels had been churches and poor men's cottages princes' palaces." This is an ideal condition far from being realized in the school with whose workings I am most intimately acquainted. If it is ever to be realized there must be a radical change in the course of study which shall plan the work in physical training on the same basis as other subjects and make it a requirement for certificate or diploma. Until this is done and the student made to feel responsibility of the same kind, if not in the same degree, for his gymnastics as for his Latin or geometry, no satisfactory progress can be made. The exercises should be carefully graded and faithfully taught, and advancement made conditional upon good work. Without presuming to dogmatize it is my firm conviction that one year should be the minimum amount of time devoted to the practical work, and that there should be at least one full quarter's work in Theory of Gymnastics.

PHYSICAL TRAINING. TO WHAT EXTENT MAY THE INDIVIDUAL NEEDS OF STUDENTS BE CONSIDERED IN THE WORK OF THIS DEPARTMENT? IN WHAT WAYS?

EMMA SSHRIEVES, Milwaukee.

What is commonly recognized as individual work, can find little recognition in the busy hours of a teacher of gymnastics in a state Normal school. But the need of special work for weak students and those physically defective, appeals strongly to the trained eye of the physical teacher, and her very interest in the matter moves her to improvise ways and means of meeting the necessity.

The needs of the physically weak student must be considered to the extent of excusing her from any exercise, free standing or an apparatus, that is known to be harmful to one in her condition. This period of exemption may be long or short, proportionate to the malady, and depending on the interest and persistency of the student in overcoming her physical weakness. Those excused from apparatus work should be given light work instead, if a conductor can be found in the number. At the same time those obliged to drop out of the run-

ning or jumping, the girl too delicate to climb a rope or vault a box, or those lacking the endurance for even the simple floor work, must be made to deplore her miserable physical condition (if possible), to the extent of an honest effort to become strong and robust. I am often surprised in the remedial effect of the general exercise on particular troubles, when once the student has been thoroughly convinced of the efficacy of the work. On running over a record of ailing girls made while taking measurements at the beginning of the junior year, the teacher may find much consolation for long hours and unappreciated solicitude in some of these same girls who have grown well and strong and become interested in all kinds of gymnastics and games. Many coming to be excused remain to be cured.

Several individual needs are so common to the whole body of students in some degree that I frequently draft the individual work onto the regular class work, for instance, poise. Having taught the principles of good poise to my beginning classes, all through the year, when giving the commands to a class in poise, I give my personal attention to the pupils that are particularly deficient in this first and fundamental step in physical culture. This is done by placing one hand on the chest and the other on the back, when the pupil is standing on toes, and not permitting her to sink onto the heels, or by requesting her to muscularly raise the chest till it touches my hand. If she cannot get the position by either the class work or by this individual work in class, and she is not sensitive to criticism, I sometimes let different members of the class try to teach her poise, and having failed, as a beginner is sure to with a difficult case, I teach her then by the wall process, before the class. When all other methods have failed in poising individuals, I teach them separately before the mirror. A teacher lacking in ambition and physical ideals to the extent of standing badly, should not impose herself upon childhood with its imitative tendencies. Indeed so much attention is given to poise that the appearance of the instructor in hall, public place, or street, acts as an electric shock in straightening spines.

Again the flat chest is so common that I have selected five exercises for the correction of the same, and explaining their purpose, proceed to teach them. When learned, I have requested that certain members of the class practice these exercises every day or better twice a day for a certain period of time. In the same way the round shoulders, the craned neck, badly poised head and crooked knees are prescribed for. At various times I make inquiry as to how many have complied with any suggestions for the physical improvement since a certain date, if they have responded to the extent that they might reasonably expect an improvement, if they feel or see that there is an improvement.

The girl who spends energy too lavishly, moves with needless rapidity, in a dozen needless directions, who wears an extravagant amount of expression in the face and dissipates her forces to little purpose must be made aware of this purposeless extravagance and be taught to concerve these energies and acquire self-repose. Largely she learns this through inhibition, but a knowledge of repose and means of attaining it may be supplemented by such books as: "Power Through Repose," "Technique of Rest" and "Dynamic Breathing."

The hysterical girl must recognize her condition as one of weakness

and physical degeneracy, and something to be speedily and heroically lived out of by attention to physical law, by will power and sometimes by seeking medical aid.

The meagre, gaunt individual should understand that a proper proportion between the ingredients that go to make up life, is not reached in her case. She must prune down the protuberances of ambition, annex possibly hours of sleep and rest, cultivate happier habits of thought, eat the things her fat sister eats, dress comfortably and cultivate healthful habits. She must recognize the real value of a normal amount of flesh. That it is not confined to the realm of beauty alone, is usually quite a surprise. She can hardly believe that the ten or fifteen pounds of actual fat which she lacks is significant of want of power, want of energy, and indicate tendencies to nervousness.

The surplus fat of the individual is, making due allowance for inheritance, an index of over indulgence in sweets, sleep, or sluggishness. It is only an occasional student that has the persistency to diet and exercise till the excess of flesh disappears. It is such an unremitting thing, and requires such an overpowering will force to out-grow acquired habits of taste. One says—"I would do it if it would only stay done, but it won't, and I am not going all my life without all the good things I like." But let her know that other things than beauty demand a certain limit of flesh, and she has a greater incentive for persistent effort in this direction. The inconsistent efforts of different individuals in the matter of reducing flesh is most amusing, quite as ridiculous as the way in which the woman followed her physician's prescription for dieting. She grew stouter and stouter and returned to her physician in wrath, telling him she was getting fatter and fatter. "What are you doing?" he asked. "Just what you told me. I eat just the things you told me to,—after every meal." The nerves smothered in fat lose their sensitiveness to impressions and grow negligent in muscular response. The weak back can in most cases be traced to incorrect dress and bad posture and readily strengthened by reform in these matters. The cure may be hastened by massage and gymnastics.

The headache and bad conditions that necessitate frequent or periodical absence from school should not be treated as accidental and something to be simply deplored, but rather as symbolical of laws violated, perhaps unconsciously, but nevertheless with inevitable results. The reasons for every warning pain should be sought out and the conditions which brought about this pain corrected. This probing for the cause of indisposition or chronic trouble is quite a new idea to most,—the old tradition that sickness is a wise dispensation of Providence has so long occupied the mind.

Worry, or fear, is something that very often calls for individual consideration, it being the groundwork of so many ills. Miss A. asks anxiously for "some exercise that will keep that lump from getting up in my throat every time I get up to recite." She finds relief in a little consideration of conditions and Fletcher's Menticulture. Many a student worries and frets herself into a state of utter incompetency over lessons that could be mastered if she could only apply the mind untrammeled by fear and doubt. Let us believe that "God

gives us sense enough and strength enough to do all that He would have us do."

The anaemic condition of many pupils renders individual work imperative. To detect the cause,—whether it be the cold lunch, insufficient or improper food, curtailed sleep, anxiety, irregular habits, insufficient exercise, lack of out-of-door life, want of sun, or mental condition,—is much easier than to bring about a proper change. The approach to anaemia is so gradual that the student does not realize her weakened condition and neither does the teacher, with rare exceptions. The anaemic plods on with brain poorly nourished (as well as every other organ), and with great nervous strain and a correspondingly weakened memory. Thus she does herself the greatest injustice, even though she does not totally collapse in the midst of work. The environment must be modified and controlled, but so often the pupil wil not consent to readjust her habts and work to produce even a normal amount of vigor and endurance, or go to the expense of proper medical attention. And why? Because she does not realize the awful significance of pale lips and listless movements, and she must not lose time in this mad pursuit of a diploma. Is negligence or ignorance on her part any excuse for such a waste of energy? If she cannot understand the enormity of her conduct, should she not be restrained by those who do consider the consequences of broken physical law? We define the amount of work for the normally well student,—why not for the physically weak? Two girls are now excused from gymnastics but are taking the regular course of study. Each is in a bad physical condition, and each postponed treatment till school began, instead of calculating on entering in good health. If each were sent home as she should be, or much limited in amount of mental work, would it not conduce to better living and better thinking?

The low-spirited or self-conscious must be sensibly persuaded or beguiled into regular recreation,—tennis, basket ball, or systematic walking.

The students found on examination to be physically defective are instructed in the corrective work and the causes of their defects. Some whose troubles are beyond their own treatment, as is the case with double curvature of spine, and curvatures with rotation, etc., take private work with a competent medical gymnastic doctor, who gives us special rates.

In the model school, one usually finds a strong assistant in the mother. She is, as a usual thing, only too anxious to accept and act upon any suggestion for her boy's or girl's welfare.

The individual work is much or little, as other work crowds or not, but that it is important cannot be doubted, both in raising the standard of health and preventing sickness; likewise in teaching the pupil to regard her affliction, be it slight or grave, as a natural result of many actions making up the "apperceptive mass" of conduct.

IN WHAT WAYS MAY THE MOST EFFECTIVE WORK BE DONE IN DEVELOPING THE STUDENT'S POWER TO CARRY ON PHYSICAL TRAINING IN HIS OWN SCHOOL, UNDER CONDITIONS WHICH WILL EXIST IN THAT SCHOOL?

FRANCES MUSSELMAN, Stevens Point.

This question attacks the subject of physical training from a purely utilitarian or professional standpoint. How shall we best prepare our students so that they will go out into the schools of the state with correct ideas of this work, high ideals, abundance of material, proper appreciation of the importance of physical training, and the best methods of making all this practical, and making them effective teachers? At the outset we may as well admit that they will not all be successful teachers of physical training, any more than they will all be successful in any other specialty. Nor can our work be counted inadequate or a failure if we do not succeed in making specialists of our students, yet much can be done to make them effective teachers.

I cannot help reiterating here that development of self is of prime importance. Example is more potent than precept. The effective teacher of physical training must exemplify in himself the theories and principles he is advocating to his classes. Children are keen observers and will not long have faith in the words of a teacher who talks and talks but never does. To preach to pupils of the pernicious effects of malposition, to tell them that they can grow strong, erect, more enduring, more graceful, more healthful by means of proper, systematic exercise will have but small effect coming from a teacher whose every attitude before his class, whose bloodless face and lifeless, listless manner belies his words. Be sure always "There's a chiel amang ye takin' notes." The notes are not always to the credit of the teacher. A little girl from our third grade which was being instructed in gymnastics by a practice teacher one quarter, met me one day with the request that I be their teacher again. On being asked her objection to her present teacher she said, "Oh, she doesn't do the things she makes us do; why, she keeps saying to us, 'heels together' and she never puts her own heels together!" A small thing, but it had not gone unobserved by those sharp eyes.

Many of our students, most of them in fact, come to us from the country with the effects of previous occupation clearly discernable in walk, carriage, and whole physical build. As effective service as any we can render them is to assist and insist on correction of faults of this kind, so they may be examples to their students.

Material.

Equal in importance in this professional training is the "what" to teach, the material for use in their own schools. The literature of physical training is somewhat meager. In comparison with the quantity of reference material we have on most other subjects it is decidedly scant. Even what we have will be denied our students when they leave the Normal schools and go, as most of them do, to the smaller towns where there are no school libraries. Books on physical training are not found in most libraries, the only one recommended

by the State Commissioners for use in the schools being Blaikie's "How to Get Strong," a valuable book of its kind, but of little practical value to one searching for gymnastic material. The best known works on this subject are, "Progressive Days, Order of Swedish Educational Gymnastics," by Dr. Enebuske, "Special Kinesiology of Swedish Educational Gymnastics," by Baron Posse, "The A. B. C. of Swedish Educational Gymnastics," by Hartvig Nissen, "German American Gymnastics," by Stecher, "School Gymnastics," by Miss Jessie Bancroft, being a system worked out and used by Miss Bancroft in the public schools of Brooklyn, N. Y., a very valuable work because practical for schoolrooms, and "Gymnastic Stories and Games," an essentially primary school book, but brim full of helpful suggestions for making gymnastics in primary grades interesting, joyous and helpful. It would pay us all and benefit our students immeasurably to be acquainted with all these sources of gymnastic material, thereby broadening their conception of this subject, by giving them insight into all the so-called systems of gymnastics, which are all good, but which, taken individually and separately, can not wisely or without challenge lay claim to be all of physical training. In wisely directing the use of such books as we have on our subject regardless of system, we show ourselves broad minded and add power to the teaching ability of our students.

There is one difficulty in putting books into the students' hands, i. e., the nomenclature of gymnastics is so varied, that without much training in the special terminology of exercise, the books are perfectly unintelligible. To the novice the books might pretty nearly as well be written in Greek. My idea, then, is that although such works as we have are valuable as guides and as reference books, our students must be trained to originality and ingenuity in making material for themselves. "He who has never searched for or practised new exercises, but has blindly imitated what others have shown him, will never master the materials for exercise." If we hope to make our students capable teachers, they must be led to perceive the underlying principles of educative gymnastics, understand the physiological laws upon which exercises are based, become familiar with the basal elements of all movements and have practice in combining elements to produce variety of exercises and in progressive degrees of difficulty. They must learn how to make variety and change. I am not an advocate of set drills, cut and dried lesson plans; endless repetitions of the same exercises for the sake of perfection I believe to be disgustingly tiresome and wholly inefficacious. There are probably dozens of movements which will accomplish the result, why keep dinning away on the one? Resourcefulness, tactfulness, a never-failing abundance of material are necessary. Nor do I believe that this particular help in making one's own material can be given our students by lecturing to them, by teaching them theories, or by studying history of gymnastics. These students will not be physical training specialists, at least not without further training than we give, so I believe this work can be made practical. My plan is to question the students after they have performed some movement, on the purpose of that movement—what part of the body would it develop? What are the parts which make up the complete movement? How could I make it simple, how more difdifficult? etc., etc. I don't take any set day or any particular hour to

give a lecture of this sort which they are pretty sure to never associate with the practical side of the work, but in the resting intervals between exercises we talk together as here indicated. I find it bears rich fruit. Then I have my students keep note books in which they write all the exercises which they have had, with any comments that they think worth remembering. These books are examined and corrected at intervals, and I am often gratified to find that some movements we have done have suggested others to them. This I think more valuable than putting a ready prepared book in their hands, because they are recording things they have done and therefore understand, because they must think about them to be able to record them, and they gain greater power by this effort.

Special attention is given to free movements as being those which will be of greatest service in the schoolroom, but it does no harm to show that dumb-bell exercises are but free movements with the bell in the hand and that any weight easily carried would answer same purpose, or that a broomstick, cut short enough will answer every purpose of a wand, and that these things are valuable and pleasing changes in the monotony of free movements, reviving interest and adding zest.

Bring the students to observe the simple movements of which any part of the body is capable in the fundamental standing position; second, what combinations of these movements can be made; third, which of these simple and combined exercises can be brought out in positions derived from the fundamental, i. e., in step positions, kneeling positions, etc. As an example, 1. A leg, or head, or trunk exercise in fundamental standing position. 3. Combined head, arm and trunk movement in a derived position as a step position, lunge or fall out. When one has mastered these underlying laws one has always an abundance of systematic, progressive gymnastic material.

Method.

Add to this, numbers of games suitable for schoolrooms and play ground, games for small children and for the larger boys and girls, and the students will be quite well equipped as far as material goes.

Method.

To give a lesson in gymnastics, to keep a class working together rhythmically is not as easy as it looks, nor can it be done without practice. Normal students see how it is done every day in the gymnasium. So do they everyday see how their geography teacher "does it," but this is not a guaranty that they can do it, too. They must have practice in teaching before they are pronounced capable. This practice in teaching gymnastics a very few get by teaching the grades from the model school. The large majority have no such opportunity. For these we arrange practice in teaching groups of their own class, and occasionally conducting the entire class. One or two lessons each week are given to this, those who are to teach having been notified a week in advance, so the lesson plan may be properly prepared. The class is then divided into squads and the teacher conducts the exercise under supervision of the director. This plan is especially advantageous for large classes, it being possible for eight or ten groups with a practice teacher for each to work at the same time, so giving opportunity for each to have frequent practice during the quarter. I do not, however, consider this as really valuable as teaching the classes

from the grades would be, for children often call for a display of ingenuity and ready accommodation to circumstances which is unnecessary in classes of adults. Moreover, it is difficult to imagine one's classmates children, and teach them as such.

I am constantly having some skeptical person say to me, "We shall not have gymnasiums, how can we teach gymnastics?" This objection comes inspite of my oft-repeated assurance that, with few exceptions, what can be done standing in a line on the gymnasium floor, can with equal facility be done in the aisles of a schoolroom. To eradicate these false notions and convince our students that it can be done, I have arranged to have the observation classes visit schoolrooms while I demonstrate the feasibility and practicability of schoolroom gymnastics by conducting classes there, and playing games suitable for schoolrooms. In this way we hope to effectually associate gymnastics with the schoolroom and make lasting impressions on the minds of the students. Later on we plan to have the Normal students do some of this work.

Most of our class drill is done with piano accompaniment. There are classes in which it seems wiser to give the free exercises to command. There are also days when an accompanist can not be found. In this emergency rhythm is obtained by counting, either by the director alone, or by the entire class for a change. Sometimes the class will sing or hum a simple, well known song to keep the rhythm of the exercise, these latter devices serving a triple purpose, rhythm, lung exercise and suggestion for varying the work in their schoolrooms, where they will assuredly have no musical instrument on which to depend.

To prevent lack of interest and falling into ruts and so making the work tiresome and burdensome, I frequently show how to obtain variety, make old exercises appear new and fresh and give zest to faltering zeal by such simple devices as having two lines face each other and do a similar or dissimilar exercise, or by having alternate lines do an opposite exercise, as line one back bending, while line two does forward bending and then alternate, etc., or by having the class sometimes stand in a circle instead of always in straight lines. In this formation all do same exercise, or number in twos and do a dissimilar exercise. By these simple changes and easy groupings it is possible to have an endless variety and to preserve unflagging interest in both teacher and scholars.

Teachers might create enthusiasm and arouse the spirit of emulation in their pupils by having as supplementary reading such books as give accounts of sports, uses of exercise, Olympian games, how to get strong, readable and practicable stories on hygiene and physiology, and by many such devices secure an interest in body-building and health.

It is scarcely necessary to say that our professional work with the students is greatly hampered, and good results minimized, by the lack of consecutiveness. The four quarters of required gymnasium work may be taken at any period during the course. It not infrequently happens that a student comes in for a third or fourth quarter, the first and second having been taken two, three or even four years before. Any teacher of physical training knows that this means total incapability to proceed. The effects of that previous training have entirely

disappeared during those years in which no thought has been given to physical development, or to the practive of gymnastics. A further great defect of our present system is the want of gradatien. Students who have no other occupation at an hour set for a gymnasium class, enter the class with no regard to physical ability or previous amount of training. So we have the weakling working beside the robust girl, the one who has never been inside a gymnasium before in the same class with one who has nad anywhere from one quarter to four quarters, or as many years' work, if she has come up through the grades of the practice school. The result of this arrangement is a limitation of the amount which can be accomplished and tne beneficial results which would certainly be yielded were conditions more propitious, for if it is true "a chain is only as strong as its weakest link," it follows our work must be based on the ability of the weakest student in the class; unless we disregard risks and hygienic considerations, one of two things must happen; either we hold back the strong and robust to the level of their weaker classmates, or we force tne weaker to exertion beyond their physical capacity. In either case we are forced to work against our better judgment and to disregard hygienic, physiologic and pedagogic laws. If we can as a result of time spent in these meetings formulate a systematic plan to replace the present inconsistent, irregular methods in our department, it would, I feel sure, be productive of great good, and immeasurably increase our earnest efforts to approach the physical ideal in the Normal students and make them capable, effective teachers of this branch. Instruction in the essentials of hygiene must accompany the practice of gymnastics. This should include personal and school hygiene. The student should know the laws of health, should know something of the kinds of food and their preparation, how to dress hygienically so that he may conserve his own health and guide his pupils in the right path.

Simple laws of school hygiene must also be considered. The students should have correct ideas of heating and ventilating the schoolroom, also of seating tne pupils in regard to any defects of sight and hearing which may exist, and with regard to the size and height of the desk and seat. Knowledge of these things must go hand in hand with the practice of gymnastics if we hope to reap the best results of our work and make of the students effective and capable teachers of physical training.

TO WHAT EXTENT IS THE DIRECTOR OF PHYSICAL TRAINING RESPONSIBLE FOR THE HEALTH OF PUPILS COMING UNDER HER DIRECTION?

NINA A. PAGE, Platteville.

Health as defined by the Standard Dictionary, is "A condition of soundness of any living organism."

It is the product, in a general way, of (1) right habits of exercise, physical, mental and moral, of rest and sleep, of recreation, of eating, of personal cleanliness, of sitting, standing, lying, and walking, of the avoidance of the use of harmful things as liquors and tobacco or

over-eating, of clothing tight enough to interfere with the workings of the body and of inappropriate dress; and (2) of right conditions of air and temperature of living rooms, sleeping rooms, schoolrooms, and of their lighting and cleanliness, including freedom from disease germs, etc., of suitable and adaptable school furniture, of the right relations or order of studies. This presupposes a normal, sound body, including eyes which are either normal or are supplemented by adequate artificial aid.

Does the formation of these habits or the existence of these conditions or both belong to the responsibilities of the director of physical training, and if so, what? and how far? seem to be the questions before us.

In that recent and eminently practical book, "A Manual of Personal Hygiene," edited by Dr. Pyle, these subjects are discussed: Hygiene of the digestive apparatus, hygiene of the skin and its appendages, hygiene of the ear, hygiene of the eye, hygiene of the brain and nervous system, physical exercise. This seems to be to very satisfactorily include under personal hygiene all of those essentials to health which would not in the strictest sense be included under school hygiene proper.

For the sake of convenience, then, I shall make the distinction between personal hygiene and school hygiene, the latter to include ventilation, heating, lighting and cleanliness of schoolroom, and their fitting with furniture adapted to occupants.

On whom lies the responsibility of such instruction that the right habits necessary to personal hygiene are formed? On whom that of presenting and maintaining the right conditions of school hygiene?

Childhood is admitted to be the most plastic age; habits are then most easily formed and the main parts of personal hygiene cannot be too early inculcated. The child who is old enough to attend school is old enough to be taught, for example, that he should not wear his rubbers indoors; that there are consequences following the eating of much candy; of rocking the ankles, etc. If all mothers and nurses were wise, educated women, having the child's best good at heart, perhaps all of the main facts of personal hygiene would be instilled by precept and example, and such replies given to the active minded child's continuous "why?" that he would grow up with these conditions of health met by long established habits. We must admit that this is not the common home condition and mother love is not necessarily wise. There is no question as to who shall lead the child along these lines. It is the regular teacher who can seize the right time and occasion for pressing some given point and make the practical application, and who in her influence at some stage of the child's life rivals the mother. It is the same teacher who has the best opportunity to see that the working position at desk, the standing for recitation, etc., is always in accordance with hygienic conditions, and to detect defective vision or hearing and advise child or parent.

So far as personal hygiene in the grades is concerned, then, the director of physical training has this to do: (1) To see that the children are given as a part of their educational training a certain amount of exercise under proper conditions which shall serve as preventive and corrective of at least some of the bad effects on health charged to school life. (2) That from time to time she takes ad-

vantage of an opportunity to discuss the purpose of a given exercise, or the reason why, for example, it is not well to stand with the weight one one foot and the other thrust out sideways, getting the reasons, so far as possible, from the class and the same time their co-operation in more effectual application at all times and under all conditions of the principles and habits she is striving to inculcate.

As to what I have included under the general head of school hygiene the director of physical training can be consulted if need be, but the combination of heating and ventilating large buildings is a question for experts. If there is not some such scientific plan, the class teacher must of necessity take charge of its regulation as well as of the arrangement for seating, etc., the director of physical training perhaps being consulted.

The students of the Normal department, according to the kind of teachers they have been under, differ widely in their knowledge and application of personal hygiene; some of them receiving "standing" on entering school for work done in the high school in physiology; others have taken ten weeks in the Normal on that subject; still others have done no formal work. Physiology as a study in our public schools is generally and rightly regarded as including hygiene, and on the whole, a means towards understanding the principles or laws concerned in what I have included under personal hygiene. If in the Normal school, in its division of labor, this subject is given to the directors of physical training, but not as a part of this latter, I am disposed to think it a good arrangement. Her business primarily, however, has to do with but a portion of personal hygiene, that which deals especially with exercises and recreation. Connected with it, however, there must be the application of principles concerning dress, cleanliness, of avoiding taking cold by proper precautions, etc.

The students not only differ in the degree of their knowledge of personal hygiene but in the physical condition. There is no health limit debarring a student from the Normal but the possession of an infectious disease. The rule of the Board of Regents requires "good bodily health" as a condition to admission to a Normal school. Nevertheless somes few present a physician's certificate to the effect that they are incapaciated for taking physical exercise, and in every class there is one or more who falls short of possessing that average degree of health essential to school work and most essential to the future teacher. Spartan though the idea may be, would not a system of medical examination as a test of physical fitness for the business of teaching be more just towards pupils and taxpayers than to turn loose on the public schools weak-bodied, weak-nerved teachers who as a natural consequence are relatively poorly equipped mentally?

These weak ones enter classes with others who are strong and robust. The conditions of the problem make it impossible to separate the weak from the strong. The director of physical training must accept the responsibility of seeing that the weak ones are not overtaxed and that so far as may be are strengthened. She is not ordinarily a physician, but can usually get at some notion of the cause of the weakness after being on some sort of friendly footing and using tact in the matter. Advice will not always be followed but can at least be given. Some-

times it will be in the nature of urging the student to consult a physician, sometimes urging a point of personal hygiene.

Responsibility also extends to eliminating certain forms or kinds of exercise which for any reason are unsuited to any individual, but it falls short of permitting anyone with organic heart trouble or hernia to do the class work.

The time for a gymanstic lesson cannot rightfully be given to any extended instruction on personal hygiene and fulfill the purpose of such a lesson. The effects of exercise and kindred topics are taken up in the term devoted to the theory of gymnastics. No attempt is made to mix the two.

Undoubtedly the director of physical training must be responsible for health of students so far as it may be affected by condition of gymnasium as to ventilation, temperature, cleanliness, and safety of apparatus. Yet she is seriously handicapped on one of these points in particular, namely cleanliness, when the janitor's service is of necessity limited to sweeping and dusting twice a week, and thoroughly cleaning twice a year.

All reasonable precautions should be taken against accidents; yet when the gymnasium contains three iron posts across the middle which support the floor above, there is always a source of danger in the playing of basket ball and all running games though their presence may be a means of cultivating self-control.

The extent of the responsibility of the director of physical training for the health of the students under her direction seems to me to be reduced to this:

(1) She should assume no responsibility of organic heart trouble or hernia, nor serious functional disturbance.

(2) None of improper dress, but insist that directions shall be followed out.

(3) She snould give the girls special instruction about exercise.

(4) Should advise and instruct on the matter of taking cold while heated.

(5) On the special need of bathing after exercising freely.

(6) On the use of cold shower bath.

(7) She should see that due supervision is given individuals below par.

(8) Tnat the condition of the gymnasium is the best possible for the work, and last, but not least,—

(9) Should by tact and consideration win the confidence of the students so that she may give the friendly word of advice along any line having to do with their well being.

At the risk of appearing to deviate from the topic of this paper, I wish to add that while the usual course of study in public schools calls for instruction on more or less of the facts of personal hygiene; and that while this is supplemented by a more formal study under the head of physiology; and although with reference to their work as teachers our Normal students in the study of school management receive further instruction on the principles of ventilating and warming schoolrooms, etc., and in psychology learn something of the effect of mental work and what constitutes a well ordered daily program, etc., yet there is nowhere any adequate provision made for instruction in sanitary science.

I mean by that term to include a teacher's working knowledge of what Dr. Newsholme, in his excellent little book on School Hygiene or the Laws of Health in Relation to School Life, calls communicable diseases in schools, and shool accidents; also the general principles of drainage, as many of our students will teach in places where such a knowledge would be very practical; of dietetics that he may give some wise advice on the connection of the school lunch consisting of pie and pickles with quality of brain work in the afternoon.

Surely the teacher ought to know that if he sees patches of skin peeling, as we say, on a child's hands, though that child may have been out of school but a few days, it is possibly the result of scarlet fever, and if so may occasion by the scattering of this skin, a severe case of the same disease.

He ought to know how to proceed with a simple case of fainting.

He ought to know that greatest care must be exercised that sewage may not contaminate the drinking water anywhere in its course.

Admitting that many of the points involved are brought up elsewhere, still it seems to me that the subject is sufficiently important and far-reaching in its results to warrant its having a place in the course of study, distinct and yet allied with school management, physical training and physiology.

SHOULD THE WORK IN PHYSICAL TRAINING FOR THE BOYS DIFFER FROM THAT FOR THE GIRLS IN A NORMAL SCHOOL? IF SO, WHY AND HOW? IF NOT, WHY NOT?

SUSANNE A. LOOK, Oshkosh.

It is true that the function of physical training is primarily health but more than that, as a science the director of such work sees its relation to complete education, the all-around development of the individual. The subject is as broad as the nature of the child, involving many important and far-reaching questions which, as yet, have remained unsolved.

The subject of my paper leads me to consider the Normal school child during three different periods: (a) 3rd to 7th year. (b) 7th to 11th year. (c) 11th to 17th year.

1. The period from 3 to 7 is the time of great activity when impressions received through the senses are expressed through the child's motor ability. Some authorities on education have said that less than one fourth of the young child's school time should be spent at his seat. All the rest of his life must bring in his motor activities. It is the thoughtful teacher's object to direct this activity by movements (in exercise and games) which involve the larger groups of muscles; the trunk, shoulders, arms and legs, e. g., children in earlier grades in learning to write should be using their arms writing on the blackboard, instead of their fingers writing on slate and paper. Any expression which calls for the use of fine muscles and for delicate coördination is known to be harmful. A short period of recreation should follow every protracted exercise. Freedom and joy in all they do are at the basis of both work and play. The little ones at their play give you an opportunity to study the "real child as he is and not as he

would gladly seem." The interests and manner of expression are very much the same in boys and girls, so it seems to me the teacher should proceed along the same lines for both.

2. Period from 7 to 11.

As the growing child is made to sit still a greater part of the day (often in an unsuitable desk and in a stooped position over his work) do we realize his breathing is hampered by these cramped postures, the circulation in his arms and legs is interferred with and his spine is bent or twisted into an abnormal state? These unnatural muscular habits if not counteracted will cause not only spinal trouble but displacement and compression of internal organs and cripple the individual for life.

Statistics show that spinal curvature in 920 cases out of 1,000 among school children in Germany occurs between the ages of six and fourteen, which is a tremendous evidence of the unhygienic condition of affairs in the schoolroom. If mental training introduces this abnormal physical environment, how can we strive to remedy and prevent these faults and deformities? Systematized exercises based on scientific principles should be given daily to every child as an essential part of his development. We can also see that posture is an indication of habitual modes of thought, e. g., drooping head shows consciousness of weakness either mental, moral, or physical; swaying limbs express lack of self-control. William Hawley Smith tells us of a teacher who, with hanging head as though ashamed, said that she "taught in the country." "Look up! Look up! There are few places of influence within the teacher's grasp equal to a country school." He felt that a change in her bodily attitude would cause a better state of mind. Prof. James says: "Sit all day in a moping posture, sigh and reply to everything with a dismal voice, and your melancholy lingers." If this is applicable to the teacher how much more so to the growing child! We should pay special attention to head, shoulders, chest, back, and spine. It is true that the body is not only a revealer of character but helps to form it, for a change in bodily attitude often has its effect on the moral nature, e. g.: Change a boy's or girl's shiftless gait to a firm, definite tread, and I believe his or her character is altered. Evil influence and intemperance of all kinds must more easily affect weak, inactive, and untrained bodies than strong ones.

We can readily see the valuable effect of physical training on the mind, since the brain receives the benefits of energetic circulation, good digestion, deep breathing, etc. Then, too, when physical training is a carrying out of definite, accurate action, it is a training in volitional control, which is especially important during the growth period. But I cannot dwell upon these important facts. The conclusion to be drawn, however, is that these factors are most important in the development of children, therefore physical training is as much needed for our girls as for our boys; and since until the age of puberty the masculine and feminine mind is very much the same, except as it has been influenced by the training of parents, I believe that the work in physical training at this age should be practically the same. In reference to games at this period, one of our modern thinkers says: "Boys play games in which competition is more intense, muscular coördination more accurate, the constructive work more definite and logical." It is the constructive period when boys delight in whittling, building boats and all sorts of things. These natural tendencies can be led

through Normal work to train the hand to perform what the mind has conceived, thus preventing that helplessness so common among learned men.

3. Period from 11 to 17.

Here we reach the age of early adolescence. I have suggested that physical training up to this time be practically the same for boys and girls. It is now, however, that the work for the two sexes should differ. At this period the whole being is changing, mentally, morally, and physically. "It is the period that marks both the hights and depths of the soul's strivings." Tables for average growth for hight, weight, and girth of chest, calculated from the data of thousands of school children in different cities show that the figures for boys and girls are very different at the age of adolescence. This is worthy of our closest attention. The girl's period of rapid growth is from 12 to 14, the boy's from 14 to 16. That physical training should be adapted to suit the varied needs and interests of each is hardly to be doubted. During this time there is increased energy and activity of the child, tendency to wander (often to run away), preference for solitude, and hereditary traits often make themselves known at this period. During adolescene the calibre of the arteries is greatly increased (about 1-3), also the size of the heart. The rapid building up of the body makes it more excitable. Activity in some direction should relieve this tension and this activity should point to present and future happiness. All the senses become keener, the child is more awkward because more self-conscious, also because of lack of motor control. His self-conconsciousness is evident from the fact that he wishes to be in solitude, or "to show off." His heavy, pounding tread gives proof of this awkwardness. Dr. Stanley Hall says: "Adolescence is nature's last effort to be generic." Many more centers of the brain are called upon to act which naturally enlarges the field of interest of the child and urges him to activity, at times mentally, at times physically. The boy shows evidence of the growing man in his desire to throw off all restraint. Fatigue and strain with him are much less dangerous than with the girl. He demands an outlet for this increased natural activity. These grave results of fatigue and strain with girls after puberty must be recognized. When we observe all these changes, physiological and psychological, do we still advocate the same work for boys and girls?

The "play instinct" at this period is quite different. The games are no longer those of individual play, but may be characterized as altruistic: team games, in which the individual sacrifices himself for the whole; coöperation for a common end, involving courage, self-control, e. g., baseball, football, lacross, etc. The spirit in girls is not the same. The boy is especially fond of fishing, camping. Life at this age increases his strength and endurance and I believe makes him capable of more sustained and harder work.

Aesthetic gymnastics as a means of training for a more graceful and better carriage in both boys and girls should not be neglected, because fancy steps, positions and movements, have their place in physical training as well as gymnastics and games. We appreciate that to overcome awkwardness or to gain grace is not wholly for the sake of appearance when we realize that awkwardness is simply the wrong way of doing things. Moreover, grace promotes simplicity and the most economical use of physical strength. Children, who, at the growth period are accustomed to making many movements, to using many

muscles, are apt to accomplish work with the least effort, the body becomes more supple, consequently the individual is apt to be less self-conscious. "Through the muscular sense the pupil becomes conscious of his inherent power and also his control of this power—the consciousness of self which takes away self-consciousness." This lays the foundation for repose, therefore, power.

LEADER'S REPORT.

It was decided by the section that the papers should represent the ideas of each physical trainer and that in view of the different conditions existing in the different schools it was not desirable to attempt to formulate any common "purpose, scope, and pain of work."

RESOLUTIONS ADOPTED BY THE PHYSICAL TRAINING SECTION.

Resolved:—

1st. (a) That there should be placed in every student's hands an outline regarding the hygiene of school and living rooms, recreation, dirt, rest, etc.

(b) That no boarding place for students should be recommended for students until it has first been visited by a committee of the faculty, are pronounced satisfactory in regard to heating, lighting, ventilating, and general sanitary conditions.

(c) That the members of the faculties be requested to often talk with students concerning their hours of study and those things set forth in (a) above.

2nd. That no person should be permitted to coach foot ball, base ball, or basket ball teams, or train students in track or field athletics, who is not competent to judge of the physical condition and endurance of the pupil.

3rd. That no person who is not able to take the work in physical training, should be permitted to do full work in the course in which he is at that time classified.

4th. That the Board of Regents be requested to employ a resident physician who shall, at the request of the Physical Trainer, with the approval of the President, determine the fitness of the student:—(a) To enter the school. (b) To do full work in the school. (c) To remain in school.

Resolved, That one term of ten (10) weeks be given to the theory of gymnastics, because:—

A. (1) It is essential for an intelligent understanding of the physiological and psychological effects of exercise.

(2) It is an invaluable aid in bringing about a practical application of the laws of hygiene.

(3) It makes vital to the pupil-teachers as in no other way the work she is to do with her future pupils.

B. It is impossible for pupils who come to the gymnasium for an average of from 1¼ to 2 hours per week to get the amount of exercise, recreation and professional training necessary to conserve health, unless all the time we have now is devoted to that purpose.

Resolved, That we endorse the following plan in Theory:—

FIRST FIVE WEEKS.

(1) Effect of exercise upon circulation, digestion, respiration, and the brain.

(2) Aim and effect, physical, physiological, and psychological of each class or type of exercise.

(3) Aim and effect of individual movements.

(4) The essentials of hygiene.

SECOND FIVE WEEKS.

The interpretation of commands and the practice of the same under criticism of each other and the director.

W. H. CHEEVER, Leader.

PRESIDENTS AND BOARD OF REGENTS.

Leader, A. E. THOMPSON, Oshkosh.

ADMINISTRATION.

a. What administrative work must the President keep in his own hands?

b. What may be entrusted to his clerk and to members of his faculty?

c. Modes of organizing administrative work most effectively and with greatest economy of time and effort.

R. H. HALSEY, Oshkosh.

In general, it may be said that the President should keep in his own hands such administrative work as (1) helps to determine the general policy of the school, and (2) such as most intimately concerns the welfare of the individual students. For instance, if that vital problem in school management is under consideration, whether a system of student self-government shall be substituted for the usual form of control of schools, inasmuch as the censure in case of failure will inevitably fall upon the President, and a close supervision must necessarily be exercised by him, it must follow that the President's voice should eventually determine what plan shall be followed. Should a question arise as to the course of study in the model school, inasmuch as the policy of the school is involved and the President is responsible therefor, his voice must finally decide the question at issue.

When a student is deliberating as to the course that he shall pursue, he is entitled to the privilege of discussing the question freely and fully with the President. Should the student's work be of such quality that grave doubts are entertained by members of the faculty as to his ability to continue with his work, the President must be the one to diagnose the case and finally to have the deciding voice in determining whether the student shall withdraw from the school or not, although the advice of the faculty will always be sought on such occasions. In both of these cases it is the vital interest of the student concerned that makes necessary the President's attention. There is danger that the President may be imposed upon in the effort to give personal attention

to the needs of each student by some who appeal to him upon matters that are trivial. And yet in spite of the fact that the President often gives valuable time in this manner for which there is no satisfactory return, we cannot afford to deny to the individual student the privilege of easy and frequent access to him, lest we find ourselves in the position of those larger schools in our sister states where the number of students in attendance is so great, according to our Wisconsin standards, that the individuality of the average student is swallowed up in the mass, and, except in rather unusual cases, the President finds it impossible to individualize in his judgment upon and treatment of the different students. May the time never come in our Wisconsin schools when they shall reach such a condition. It would seem to me that when one of our schools has a membership of more than five hundred students in attendance at one time, it has reached the danger point. Even if it were true that a greater number than this could be properly cared for during their stay in the school, it is not true that they could be followed in their work after leaving, and if the Normal school is to subserve the highest interests of the state, it must not by any means cease to care for and advise with its students when they have severed their immediate connection with the school. You will all bear me out in the statement that your greatest difficulty in placing teachers is not in finding proper persons for the average positions that require no unusual qualifications, but in selecting persons to recommend for the more responsible positions about which your advice is asked. You do not know with sufficient definiteness just what your graduates are doing,—how rapidly they have grown professionally since their graduation, unless by frequent correspondence or visits you come into close touch with their work. With the increasing number of graduates, this problem becomes more and more difficult, and unless we can devise some method of conducting this correspondence so that it will not fall entirely upon the shoulders of the President, we cannot hope to conduct satisfactorily what might be called this "school of correspondence" for the improvement of our graduates.

In the hands of the clerk should rest the responsibility for all records of students, and she should be clothed with authority as great as the President has when she seeks to secure from teachers who are delinquent the records of their students. Much of the correspondence in the office can of course be turned over to her without further thought on the part of the President; for instance, requests for catalogs, records, data with regard to the school, etc. She should be a person who has a sufficiently intimate knowledge of the working of the school and sufficient judgment to answer the numerous circular letters from "dear detestable friends" who wish data with regard to various parts of the school's mechanism. The records of attendance she should be responsible for. In most schools it seems to me that we may well expect the clerk to take charge of the money paid for tuition, book rent, etc., to keep the books showing the receipts and expenditures, and in short to take charge of the purely clerical work of the office.

Much help in administrative work may be given by members of the faculty, with sensible relief to the President, and benefit, I believe, to the persons undertaking the work. Unless something of this kind is provided for by the President, it is my belief that he is not doing all that he ought to be doing to help in the development of the members of his faculty. Many of the latter have little conception of the multifari-

ous administrative duties of the President, and it is not until they are assigned some definite piece of work, as for instance, the supervision of a portion of the building as to the efficiency of the janitor's work, or of the engineer's work in maintaining an even temperature throughout the building (making weekly reports thereon to the President), that they have a realizing sense of what the President must do to be omnipresent in the building, and so gain the power that they need in school management. In such a matter as the inspection of boarding places for students, the members of the faculty may become most useful, and may help to gain that sense of unity and harmony in the working of the faculty without which no Normal school can expect to prosper. For this purpose it seems to me that some piece of administrative work, however small, should be definitely assigned to each of the members of the faculty that they may grow to feel that it is only when they work together as one harmonious whole that the greatest efficiency of the school may be obtained.

In the determination of credits to be given to students for work done in high schools or colleges it seems to me that the advice of the faculty should be sought. Although it is probably true that the President has a better opportunity of knowing the work done in individual high schools than any other member of the faculty, unless it may be the institute conductor, yet we should encourage each head of department to become as well acquainted as possible with the teachers of their subjects in the neighboring high schools to the end that both the high schools and the Normal school may be helped by the more intimate knowledge. And yet after the credits have been assigned by individual members of the faculty, it is necessary that the whole findings be reviewed by the President in order that no injustice shall be done to the entering student.

In the choice of books for the library, the recommendation of heads of departments should largely guide the selection, but since it is the President who has in mind the total amount to be expended, and there must be some one to see that a right proportion is maintained among the different departments, here again the President must finally determine what books shall be ordered.

We have found in the Oshkosh school two methods of organization in our work that have proved especially beneficial. One of these is a system of faculty committees, which supervise some of the administrative work; and another, a system of faculty advisers for students. Under the first system there are faculty committees appointed, having charge of various lines of work. There are committees on—Individual Welfare of Students, Social Life, Christian Work, Literary Societies, Athletics, Student Records, Course of Study, New Business, Graduation, School and Platform Entertainments, Student Contests.

The Committee on Individual Welfare attends to such matters of detail as inspection of the places where rooms are rented to students, the boarding clubs, and any other matters that have to do with the life of the students, during that portion of the day when they are not engaged in school work.

The Committee on Social Life acts as an advisory body to the students in preparation for class receptions, or receptions of the various student organizations.

The Committee on Christian Work acts in conjunction with the Students' Christian Association, and brings to the consideration of the

faculty various matters from time to time, that have to do with the moral welfare of the individual members of the school.

The Committee on Athletics, as its name indicates, is an advisory body with the student organization, whose object is to recommend regulations governing the eligibility of students who desire to engage in athletic sports. This committee also considers ways and means in conjunction with the student body, for securing the revenue necessary for carrying on these sports.

The Committee on Student Records meets weekly to consider any cases of delinquent students reported by members of the faculty. These reports are handed to the chairman of this committee, on blanks specially prepared for this purpose, are considered by the committee in session, and the case of the student is then referred to the President, or some member of the faculty, as the circumstances seem to indicate.

The Committee on Course of Study has considered modifications of the course of study for the Normal department, and also has revised to a certain extent the course of study of the model department.

The Committee on School and Platform Entertainments in conjunction with the committee from the body of city teachers, during the past two years, has carried on a series of lectures. This committee acts also as an advisory body to such organization of the students as may desire to give dramatic entertainments, or engage in some form of literary entertainment.

The Committee on Student Contests was organized specially for the purpose of superintending the matter of oratorical contests with other Normal schools of the state, and debates which may be held between the representatives of this school and other Normal schools.

We have found that this system of faculty committees has operated beneficially in that it has made individual members of the faculty better acquainted with the administrative work of the school, and has saved the time in faculty meetings by having such matter as would naturally be presented to the faculty, carefully digested in a committee before the faculty acts upon it.

The system of faculty advisers for the student body is one that has been organized for the purpose of securing a careful personal supervision of each member of that body by some member of the faculty. The students are divided into groups of from 15 to 20 each, and each member of the faculty has charge of one group. In so far as is practicable, the faculty Committee on Individual Welfare has assigned the members of the student body to different members of the faculty in accordance with the expressed preference of the latter. The students feel in this way that there is one member of the faculty in particular to whom they may go in case advice is needed, and who, in one sense is more immediately responsible for their welfare than any other person in the faculty. Frequently the cases of delinquent students are referred by the Committee on Student Records to the faculty adviser of the individual student, for conference and assistance. The students are made to feel, however, that they are at perfect liberty to consult with the President, or any other member of the faculty, at any time, without reference to the group to which they may be assigned.

It has seemed to me that the advantages of this system of faculty advisers for the students may be very greatly multiplied, if we shall consider the relation to extend beyond the time of the student's immediate connection with the school. A correspondence might be divided in

this way, which need not be burdensome to the members of the faculty, and will help to continue indefinitely the interest which the students feel in the welfare of the school, on the one hand, and the personal interest which the members of the faculty feel in the individual students will be maintained through a period of years, on the other.

In general it may be said that any system which serves to increase the feeling of responsibility on the part of members of the faculty in the students as individuals must be productive of good, both to faculty and students.

SUPERVISION OF TEACHING IN NORMAL SCHOOLS.

ALBERT SALISBURY, Whitewater.

This theme has been assigned to me with no consent of mine. It is one concerning which I should be a learner and not a teacher. I have a sort of intuition, or suspicion at least, that I am thought, in high quarters, to be a little lame in this matter of faculty supervision. Therefore, I did not take very kindly to my assignment. But while I protested to the conductor of this institute against this disposition of the topic, yet I did not absolutely balk at it. I am as willing to become a target for my respected colleagues as I am to engage in target practice on occasion.

If President Albee of revered memory were with us on this occasion in the flesh as, for aught we know, he may be in the spirit, he should be the one to instruct us on this important subject. He of all our number from the beginning, showed greatest power in the direction of molding a body of teachers into his own image, so to speak; into an appreciation and acceptance of his own ideals. And it is surely matter for deep regret that we cannot have from his lips a relation of his unique and remarkable experience in this difficult department of executive work, the supervision of instruction and instructors. But he has been called to a higher council than this, and we must do as best we can.

(a) "What time is necessary for the supervision of class work by members of the faculty in the Normal school?"

The answer depends, among other things, on what the head of the school aims to accomplish through this supervision. If he dreams of keeping close watch of all that is taught and done by each teacher, all his time will not be half enough. The question provokes restatement, viz.: "Is it necessary to supervise Normal school teachers? If so, how much?" Or, better: "What time can be afforded for such supervision?" It is a relative matter, after all. How much the head of the school should supervise depends on what else he has to do, what else he must keep under his own hand.

The teaching in a school, even a Normal school, even the professional teaching, is not the most important thing there. The spirit of the school, enthusiasm for the work of teaching, loyalty to its aims and standards, rank above the class teaching, though not wholly separable from it. And these things come not by class supervision. Pres. Albee did all these things, thought out with philosophic mind the problems of education, fired his school with loyalty and enthusi-

asm, molded his students, and made his teachers over again; but Pres. Albee is dead. There are limits to any man's strength. And few men are so wise and strong as to have the right, to say nothing of the ability, to impose their own ideals and purposes so absolutely upon a faculty and school.

The head of a Normal school has many things to do besides supervising class teaching. He is President not simply of the faculty, but of the whole school. He has no right to put himself into such relations to the teachers that he will have little, or too little, relation to the students as individuals.

1. He is charged with the general management of the institution. He must face in no uncertain way towards the Board of Regents and the higher powers. He must know the vital needs of his school, material and professional. He must have plans and visions of the future, must find continually new needs, or stagnate. He must stand to the outside world as the head and representative of the school; he must travel some, lecture some, correspond much, and take a laboring oar in the educational movements of the commonwealth.

He must so organize his faculty that they will not need his constant presence. The principle of division of labor must prevail. Of all the work in a great school there is none which can be so safely handed over to others, so far as its successful accomplishment goes, as that of teaching. The executive work of the school cannot so well be divided or distributed. Here the rule holds: "If you wish a thing done satisfactorily, do it yourself."

2. The executive must have much and intimate contact with the students of the school in formative ways. He cannot fruitfully deal with them at arm's length. If he is such a personality as the position requires, he has no right to withdraw himself from student ken and work only as a sort of *deus ex machina* through the teachers. The President's office should never be locked. It should not be a *sanctum sanctorum*. But the formative influence of the President cannot be wholly accomplished in the office. The morning exercises are his great opportunity; the morning platform is his forum. His best thought, pedagogical and otherwise, his enthusiasm and professional zeal, his public interest and outward look upon the world, must find expression here. This means that much of his strength and vitality must go into the morning exercises.

3. He must teach, for his own sake. I feel that even the President of a college loses greatly in not appearing before his students as a teacher. But far more does the Normal school President need to "keep his hand in" as a teacher. There is no other way so effective for knowing one's students and coming into fruitful relations with them as that of direct teaching. And this is a point of great importance in the general discipline of the school.

Furthermore, I believe that the President should teach those subjects which are most vital to the professional result of the school, not general literature or political economy or any other odds and ends of general culture-subjects. Neither, in my opinion, should his teaching be confined to the senior class or some small section of the school. He should get hold lower down, meeting students near the doorway of their professional course.

4. He should be the ready and effective leader of a frequently and

regularly recurring faculty meeting. To save this meeting from becoming a dreary jumble of administrative odds and ends, or a place for threshing old straw, or a perfunctory rehearsal of commonplace and chronic platitude,—to some acquaintance with all which things I myself plead guilty,—consumes time and energy. When all these necessary functions have been decently fulfilled, how much time and energy has a President left for the work of supervising class teaching? I do not mean, at all, to imply that this function should take only what is left when all others are discharged; but we now reach again the question: What share of the whole time may it rightfully claim?

Before this question can be rightly answered there is yet another which must be duly considered, viz.: What is the net result and profit of such supervision when performed as faithfully as the circumstances allow? And here I may as well confess that I cannot divest myself wholly of the suspicion that good time may be wasted in this exercise, and that the results, when rightly measured, may sometimes prove to be disappointingly small. There are at least limitations upon its success. I allow myself to borrow, here, from another paper which I am to present at a section-meeting later in the week:

"Aside from the limitations of the time and strength of the executive, with the multitude of important duties which he cannot delegate to others, there are also the limitations of the situation. Even Normal school teachers are liable to be easily disconcerted, and their pupils are still more so. The head of the school is held in so much awe (for want of a better term), under these circumstances, that he seldom sees a fair sample of their work. And, even at the best, he gets little idea from visitation of classes of the sequence, continuity, and articulation of the work of the teacher.

"Again, the question what to do with what he does see is always a difficult one. There is a sacred tradition that he must not criticise or interfere with work on the spot; while criticism in cold blood, afterwards, seems often too serious and formidable. If the supervising head remains silent, that is likely to be construed as a sullen disapproval; he is expected rather to praise than to criticise. But the giving of 'taffy' seems to him, usually, as 'stale, flat, and unprofitable.'"

One must consider also what effect much class visitation may have upon the attitude of students towards their instructors. Does it not raise dangerous questions in their minds?

The question arises, furthermore, how far the ends sought in class supervision can be attained through other channels or agencies, more indirect in character. The executive, without encouraging the spirit of gossip or fault-finding may learn much, does learn much, from the comment of students outside the classroom upon their handling. These student-views are of the greatest value as clues to further investigation. Secondly, the President will learn much from the unconscious revelations of the teacher through contact outside the classroom and in office consultations, which should always be encouraged, and for which free opportunity should be provided. Thirdly, there is something to be said in favor of requiring written reports from the teachers of the work being done, with occasional

submission of lesson-plans, both of lessons just given and of lessons about to be given. All such indirect means of keeping track of the teacher's work tell a truer story, as far as they go, than does personal visitation by the chief.

But I am doubtless making myself misunderstood. I am not trying to deny any value to class supervision, nor even to minimize its value, but only to be honest with you and myself in the effort to find its true place. When all has been said or suggested by way of limitation, it still remains that supervision of class teaching cannot safely be dispensed with. "Supervision is, after all, needful in order to adequately know what teachers are teaching, what heresies, misconceptions, or shallow conceptions are being promulgated. It must, at least, supplement all the other avenues of knowledge open to the chief on these points. And it often, very often, gives clues to discoveries which are completed by other means. The presiding officer must school himself to discharge this duty faithfully and as graciously as possible; and teachers and pupils must learn to take his visits as part of the business, and not flinch from the useful ordeal, welcoming every suggestion as a means to a greater unity, and so to greater efficiency, in the common work."

The question recurs, what part of a President's time should be set apart for supervision of class teaching? Not to "beat the bush" longer, I will venture to say that, indispensable as it may be for some purposes, the head of a Normal school cannot wisely give to this function more than sixty minutes of any school day; and often he must omit it from the day's work altogether.

(b) "How can this supervision be done so as to secure the most intelligent judgment as to merits and defects of teachers; as to unity of ideals and effort in professional work?"

Under this head, it does not occur to me that I am qualified or entitled to say very much. I suppose the question is wholly one of method, or procedure. Such questions as these will arise, viz.: Shall the supervising officer make short visits or long? Shall he drop in on the teacher often for a few minutes at a time, to catch the movement and sample the pedagogical atmosphere; or shall he stay through a whole recitation, to get the continuity of things, and visit less often, as he then must?

Shall he allow himself to "mix in," during the exercise, by way of covert suggestion to teacher or class, or shall he preserve a judicial silence throughout?

Shall needed suggestion or criticism be made to the teacher immediately at the close of the exercise, or later and elsewhere?

Wherein lies the greatest danger,—in praise, criticism, or non-commitment? How far shall one dull the edge of criticism through fear of wounding the pride or sensitiveness of teachers?

In my experience as a Superintendent at the South, I was almost driven to the "mixing in" procedure by the teachers themselves. They construed silence as ominous of disapproval, and were disconcerted and depressed by it. But I find that members of a Normal school faculty sometimes protest against any participation by the visitor in the exercise. They regard it as interfering with and obstructing if not thwarting their own purposes in the recitation. Was it, then, a bad habit that I formed?

I am well aware that I am proposing questions and leaving them unanswered. I humbly take my seat as a learner.

(c) "What means should be employed to remedy defects of teachers and to secure unity of action where it is lacking?"

Here, again, I fear that I shall fail to exhibit any fertility of counsel. I certainly have no novelties to suggest in the direction indicated and shall venture only a few propositions.

The first and chief means, I would say, of furthering the ends specified is that of personal conference with teachers, whether by way of interrogation, suggestion, or definite criticism. The President should take care to keep himself accessible to every teacher. Office conference with any teacher desiring it should take precedence over almost any other demand on the executive attention; though it must be admitted that some teachers will abuse their privileges and obtrude trivial questions and difficulties which they should be able to handle for themselves. But this is the exception and not the rule; and the President should often be the questioner and not always the *questionee*. The accessibility to teachers will call for special effort by the executive to establish such a habit on his own part, and to encourage teachers in the practice of seeking conference on questions connected with their plans and methods of work.

Another agency for rectification is the stated faculty meeting. Many questions can there be raised in an impersonal way, and policies urged, more or less authoritatively, which will lead to office consultation by teachers, or will even obviate the necessity for such consultation. Twenty heads are better than one; and if the President is a man of open mind he will learn as well as teach, will both impress and be impressed through faculty discussions. But he must be the leader of these discussions, and not let them drift whither they will, as accident or caprice may determine. He should have a purpose in the starting of any discussion, and endeavor to bring forth some result besides mere discussion. Faculties are somewhat prone to thresh old straw, and to reiterate old propositions through mere force of habit. In this there can be no profit.

But too much must not be expected of the President in the way of reducing chaotic elements to intelligent unity. He must not be required to make bricks without straw. Neither is it his proper duty to reorganize and regenerate inapt and unteachable teachers. As I have said before, the principle of division of labor must obtain, the President must leave some responsibility on others; and the state, through its representatives, must see that assistants who do not assist and subordinates who cannot, or do not, co-ordinate, are eliminated without too much delay. And the responsibility for this eliminating process should not be thrown wholly upon the President of the school. It is not enough even to give him *carte blanche* in the selection of his staff. Being only human, he is bound to make some errors in the selection of teachers, no matter how great his caution; and he should not be tied to the wheel of his own mistakes. The Committee on Teachers ought not to be simply a mechanism for the saving of money; but it should be a wholesome and helpful agency in this very direction of securing unity and efficiency in the instructional forces of the schools.

The President of a Normal school under our Wisconsin system and

perhaps under any system, has great opportunity and great responsibility. His labors are manifold and his burdens heavy. To accomplish all that is laid upon him and attain the standards rightly set for him, he needs to be of a calibre not too common in the world. But whatever his calibre, he will have abundant occasion in view of all his opportunity and all his responsibility, and all his liability, to exclaim: "Who is sufficient for these things?"

The truth is that he has more on his hands than one man can do with a full measure of success; and I have sometimes thought that a large Normal school should be a sort of "double-header," that there should be a sort of vice-principal or associate principal, who should be charged, as his sole duty, with this very business of class supervision and the securing of unity in the professional work of the school. There would unquestionably be some dangers connected with such a mode of administration; but perhaps no more serious dangers, after all, than attend the present system. But while we are waiting for some such solution of the difficulty, we must push along as best we may, depending upon Regents and State Superintendents to stimulate and quicken us by all the methods within their reach, including such stimulation as this present convocation affords.

FACULTY MEETINGS.

(a) How can these meetings be made most beneficial to the school?
(b) How often should they be held?

THERON B. PRAY, Stevens Point.

The purposes to be served and the character of business usually brought before these meetings may be considered in two general classes: administrative and pedagogical.

Administrative.—

I. Distinctly official business; such as

(a) Making of programs, with due reference to the interests of large and small classes (i. e., groups of students reciting together), distribution of recitations through the school day, recesses, etc.

(b) Variations from regular program, due to rhetorical or other school exercises, examinations, library classes.

(c) Friction in movement of classes or relations of any teachers or pupils growing out of (a) or (b).

(d) Social affairs, society meetings, athletics.

II. Discipline, including consideration of failures and successes of students, their general conduct and character. What influences may be brought to bear upon students for their improvement, and how?

III. Classification, promotion, and graduation or dismissal of students.

IV. Consideration of strength and weakness of the school organization, its needs, material and otherwise, and the possibility or desirability of further development or profitable change in any particular.

Pedagogical.—

1. The increase of interest in pedagogy, with confirmation and unification of sentiment and practice.

II. The comparison of aims, processes and results reached in practice department and Normal classes, with a view to elucidation of method.

III. A study of general pedagogy, of principles and practice in teaching, of tendencies and currents of educational thought as shown in literature or recent studies.

The above scheme is suggestive rather than exhaustive, but may serve to show some of the ways in which meetings of the entire faculty of the school may be found necessary and useful. While it may easily happen that some cases presented to the faculty concern persons wholly unknown to certain teachers, it is quite as likely to be true that a closer approximation to fair and wise decision is reached after consideration of facts known to and offered by teachers not directly concerned. Especially is it desirable that teachers of model school departments, who have best opportunity to observe and note disposition and characteristics of teaching students, and many evidences of character not to be tested by examinations, be present whenever such matters are considered. By Sec. 1, Art. VII of the By-Laws of the Board of Regents, the faculty of each school is composed of all the teachers of that school. This is certainly a wise and just provision, securing for every teacher an opportunity to be heard in the determination of any matter of policy, practice or pedagogy, in which he or she may be interested; and securing for the school action based upon experience, wisdom and ripest judgment of the entire teaching body.

That such result may be realized in actual practice, a few simple, fundamental conditions must be observed: (1) Regular attendance of all members of the faculty. (2) Mutual trust and consequent frankness of statement of fact and opinion. (3) Extreme readiness to give as well as receive and to test fact, opinion, principle or method. (4) Outside of the meeting closed lips on all matters of discipline or difference except on the part of those authorized or required to speak or act. On no other condition can unity of sentiment, belief or practice grow. In no other way can effective co-operation and the professional spirit develop in the faculty, and so come to exist in the school.

Weekly meetings are not too frequent to maintain interest and continuity in pedagogical discussion or investigaton, and to take prompt and timely notice of current facts in the life of the school. Quite rigid observance of time limits both for beginning and ending the sessions will avoid any undue demand upon the time of the teacher, or undue interference with the numerous varied duties and obligations of teachers to themselves, the school and society. It may be found advisable to divide each session, within well defined limits of time, between the two main divisions of our subject noted above, administrative and pedagogical, thus providing for prompt action on one class of topics and continuity of interest and thought as related to the other class.

TEACHERS OF PROFESSIONAL SUBJECTS.

Leader, J. I. JEGI, Milwaukee.

(First Day.)

In the Supervision of Practice Teaching, how secure the maximum of spontaneity under the control of Pedagogic Law?

ROSE C. SWART, Oshkosh.

Teaching that possesses spontaneity and at the same time conforms to pedagogic law, is high grade teaching, and is doubtless, in general, the exception rather than the rule. We are asked in this discussion to consider how, in the case of Normal graduates, it may be made the rule rather than the exception.

At the risk of seeming to beg the question, I am going to say that not all students who enroll in a Normal shcool can be made into such high grade teachers; and that in order to make such teachers the school must find in the student, to a promising degree, at least four qualities:

1. A naturally good mind, clear, vigorous, and sound in its workings.
2. Moral earnestness of character and a sense of responsibility.
3. The natural sympathy with children that enables him in matters of learning and of conduct to take the child's point of view.
4. Natural qualities of leadership; that is, he should give promise of the ability to inspire his pupils with worthy ambitions and ideals, to stimulate them to undertake, and to direct and control them in dong what they undertake. These natural qualities constitute the student's possibilities out of which the Normal school may confidently hope to develop a high degree of teaching power. The public may very properly demand to be protected from Normal graduates who have not shown, either in general, or in some special line, these natural qualifications for which there is no substitute.

The question whether or not such natural qualities exist in a given student should not be left wholly to his practice work to determine, because it comes comparatively late in his course, and because the model school should be protected from practice which is unworthy of its opportunities; but the entire faculty of the Normal school should work together from the beginning to test and to develop the student's fitness for teaching. It will help the Normal class teachers to hold in mind the object of their teaching,—namely, to make scholars in the branch in order that they may make teachers of it.

Heads of departments in the Normal school proper should rank members of their classes with respect to promise for teaching the branch as well as capacity for learning it; and in determining the student's worthiness to continue his professional course these rankings should be considered with those of scholastic attainment.

So much being granted, how may the supervisor secure the maximum of spontaneity under the control of pedagogic law and thus enable the practice teacher to realize his own highest possibilities?

First.—The practice teacher should not be deluged with methods

and processes. It is possible to focus his attention upon them so early and so persistently as to cause him to lose sight of the end for which they exist. He may even be led to think that in the way of doing a thing lies the virtue of doing it. Hence, both the supervisor and the practice teacher should distinguish between the end sought and the means to the end. The end sought is the mental and moral improvement, the social training, and the physical well-being of the children taught; the effect of the teacher and the teaching upon the children is the real proof of the quality of the work. If the teacher interests the children in their school work, makes them well bred in manner, helpful and considerate in spirit, diligent in well-doing, widens their knowledge and deepens their insight a little, day by day, and trains them to use what they know in finding out something else, or in working out their own ends, the work is good, no matter by what particular device or general method is was accomplished. It will not do to try to substitute for these solid, beneficent results the means by which they are sought to be secured. In other words, it will not do to magnify the tool above the work which it aids us to perform.

Second.—Since the end sought is the improvement of the children, the attention of the practice teacher should be fixed upon the children as the center of his thought. He should be trained to take note daily of the condition of each child, mental, moral, and physical, to consider whether the child is moving forward or backward, and to examine into the causes of the latter condition if it be found to exist. He should be trained not to rest satisfied until every pupil under his charge is growing better, gaining some added grace and strength of spirit, mind, and body. He should be taught in school management, in theory, in psychology, in the science of education, and in practice, to study the nature of children, to come into sympathetic touch with their needs, to project himself in imagination into their future and realize the difference it will make to them what kind of future it becomes.

Third.—The practice teacher should make an intensive, purposeful study of the subject he is teaching, and in the classes where it is treated academically and professionally, as well as in his practice work, he should be taught to look upon it as a tool with which he is to work out for his pupils some definite result. He should learn to know and to appreciate its educational values and their adaptation to the children's needs. In this way only can he obtain a scientific basis for the selection of material and become spontaneous in respect to what to teach. He should know the logical order in which the topics within the branch unfold and the psychological order which should often be substituted for it. He should know the distinguishing ideas of the subject which differentiate it from all other subjects, and the relation of those ideas to the mental condition of his class.

Fourth.—The apprehension of the nature and needs of the children and the appreciation of the nature and values of the subject taught, will bring the practice teacher to a realizing sense of his need of method. His sight will be so clear and his necessity so great that if no methods existed he would invent them, as the mechanic invents a tool or a machine fitted to his purpose. Here is the supervisor's

opportunity to preserve and develop spontaneity in conformity to pedagogic law. Skilled supervision should help the practice teacher to see the situation, to establish the aim, to bring all previous training and knowledge to bear upon the choice of means, to make a plan, to try it, to judge of its results, to decide upon the cause of failure, to rectify the plan and try again. In all this, since spontaneity is the quality of acting from native impulse, the impulse and the idea so far as possible should come from the practice teacher himself and he should seek the counsel of the supervisor and submit his aims and his choice of means to the judgment of the supervisor as to one who has had greater experience and larger opportunity to know than himself. The attitude of the supervisor, so far as is consistent with the reasonable welfare of the children practiced upon, should be such as finds expression in terms like these: Try it and see; I think you will find it will affect your pupils thus or so; if you are not satisfied with the results, come and tell me and try to be clear as to which portion of your plan failed, why it failed, and to think out by the light of this experience a plan that will be better.

This is no impossible picture. I am sure that every supervisor has practice teachers in charge who work this way, and recognizes in them the teachers that are learning to combine spontaneity with conformity to pedagogic law.

Fifth.—In order to work in this way, the practice teacher must be respected and supported in his position. He should be put in full charge of the class and feel that he, and he alone, is responsible for the results obtained. We may all be assured that whatever is accomplished in any real way in that class under his administration, he will secure by virtue of his own personality. All things that build him up in self-respect, that give him confidence in himself, that make him feel the dependence of the children upon him and his corresponding responsibility to them, will help him meet the situation.

At this point the supervisor needs to understand the nature and office of criticism. The art of criticism is the art of judging of the quality of a piece of work in the light of principles. Scientific criticism is therefore characterized by reference to principles. The office of criticism is to discriminate between those qualities of work which are worthy of preservation and permanence, and those which are unworthy. Scientific criticism is characterized by thoroughness. The act of criticism should be unfaltering and just, and should subordinate the personality of both the critic and the criticised to consideration of the principles and purposes that govern the work. The effect of criticism should be inspiring. It should clarify aims, simplify problems, induce ingenuity in devising ways and means, establish right points of view, point out better modes of approach, rather than enlarge upon defects. Nothing is more dampening or unprofitable than to contemplate forever one's faults and failures. Better look upon them as the doorways through which we may gain visions of better things to do and be. Spontaneity thrives best in an atmosphere of hope.

DISCUSSION—GENERAL.

Mr. Emery—You stated in your paper that the practice teacher should have the entire control of the class for the time being. Would you then as supervisor of practice, at any time take this class from the hands of the practice teacher and teach it yourself, or call attention to the errors of the practice teacher before the class that he was teaching?

Miss Swart—I should do both, Mr. Emery. That may seem to be inconsistent, but I do not think it is. However, I think that the person who takes the work out of the hands of the practice teacher should always take it out of his hands in such a way that both the teacher and the class shall feel that it is done for the purposes of illustration, not in a spirit of criticism, not in condemnation, but purely for purposes of illustration.

Now there is this that I think every supervisor learns by experience, and which has been discussed here at great length already,—that you cannot always make a person understand what you mean by words. You may tell a practice teacher a number of times a good way, as it seems to you, to do a thing, and think that he understands you, and then find that it is not practiced in the recitation; that the recitation is not conducted upon the plan that you had before the practice teacher. It is simply because he is not able to build up, construct in his own imagination, and put into actual practice the suggestion of the scheme that you gave him. The only way to get him to do it is to let him see it done. If you put it into operation and he sees you do it, then he can do it. But he cannot translate the words into action. I think that is the time, perhaps the only time, when the supervisor of practice is justified in taking the class from the practice teacher.

Mr. Emery—Do you approve, then, of frequent interruptions by the supervisor of practice?

Miss Swart—No, sir, I do not. Frequent interruptions, I think, are bad.

Mr. Jegi—The discussion of this subject is to be opened by Professor Gentle.

Mr. Gentle—One point at the close of the discussion suggested itself to me. It seems to me that an interruption of a teacher before his class is about as bad as an interruption of a pupil when he is on his feet making a recitation. I think it was brought out yesterday that he ought to be allowed to go through his recitation without interruption.

I find myself in hearty accord with Miss Swart in the ideas that she has put forth. I have been particularly pleased with the stress that she puts upon the individuality of the teacher and also the fact that it is his influence upon the child which is to determine how much of a success he is in his work. The question for discussion, of course, puts this matter of spontaneity into the hands of the supervisor; but it seems to me that the beginning of the work goes far back into the Normal school course, and although that is a little outside of the question, I want to consider it for a few moments.

It seems to me that spontaneity grows out of a conviction that the thing one is doing is just the thing to do, is the right thing to do. This spontaneity is conviction and conviction should grow out of

knowledge. We might call it an intelligent emotion. When we can get the student into such a condition that he is convinced that he is doing the right thing in a practice school, then much of what he does will be spontaneous. Of course, there is the element of the child in it that he has not perhaps gotten in his theory; but a proper theory of instruction looks constantly to the welfare of the child under instruction. If we may look for a little while at the aim in the Normal school to give him this theory, we shall find that it starts sometime back in the course. Pernaps the first part of the spontaneity comes from his early work in psychology. It is there, perhaps, that the basis is given for the theory of instruction that it is intended he shall carry out. But not all of his psychology is to be used there,—only that part perhaps which shall form a basis for intelligent notion of what constitutes instruction, and, perhaps, of that larger term, education. But the work does not stop there. We have in the school course no better place in which to attempt to bring the student a little bit closer to the subject-matter under consideration, to bring child and subject-matter closer, than in the course in psychology and general method. It is followed in many places by some work in observation, where students are allowed to see the children for the first time in any official way. Here it is that this theory is brought closer to him than ever before. He is in touch with his children, in very close touch with them by this time. This is a step toward that conviction which I think is fundamental to spontaneity of instruction. We advance a step further. Perhaps in the next course we can bring the theory more into practice than it has been before.

It seems to me that spontaneity in the first work as practice teacher can best be brought about by his being given charge of but one class for, say, one recitation a day in the beginning. That is the case I presume in most schools, and while he is at that work it does not seem to me right for the supervisor, or critic teacher, to call his attention to and insist that he keep in mind all the principles of practice that he has learned in the theory classes; call his attention to one at a time until he is able to carry it out unconsciously. I do not mean that the rest shall be allowed to go in any direction, nor do I think that that will happen in a well organized theory of instruction. As he goes on increase the number of principles to which he is to pay attention, and increase also the amount of practice work that is required of him. Instead of having one recitation, increase the number. Give him control of the class for a quarter of a day. It would seem now that the difficulties will greatly increase, but there has been developed ability to meet these difficulties and an increased spontaneity in carrying them out, because there is constantly growing in him this conviction that the work he is doing in the Normal classes and that in his practice are coming closer together.

It seems to me, as Miss Swart so clearly put it, that a large element in this spontaneity is due to the manner of the critic teacher or supervisor toward the student. We very well know that some of the criticism is not calculated to awaken spontaneity. It throws cold water upon the aspirations and inspirations that he has. I have in mind a case where a child said to me: "I felt very sorry for the teacher today. She cried." I am quite sure it will be a long time before spontaneity will be aroused in that case. If the recitation is so poor that

it ought never to have taken place, it seems to me that the critic teacher or supervisor ought to seek out some redeeming feature and hold that up first. It will make the impression of what he will say later all the more striking and certain.

I do not think I have anything more to suggest along this line until the discussion has gone further.

Mr. Jegi—The question is open for discussion. I wish you would notice carefully the wording of the question,—"how to secure the maximum of spontaneity," and keep to that question. If you have something to contribute, put it pointedly and in a few words.

Mr. Mitchell—Sometimes in the course of the work in the Normal school the student has a very fine idea of the theory of the subject, and that is about all he has. I want to know if these people can develop great spontaneity in the model school or anywhere else?

Mr. Swart—I understand you to refer to the theory of the presentation of the subject.

Mr. Mitchell—Yes.

Miss Swart—Does the teacher who comes with a large amount of theory concerning the presentation of a subject make a spontaneous teacher when he does not have a very thorough knowledge of the subject?

Mr. Mitchell—I have reference to high school graduates who come to the Normal school to get some theory.

Miss Swart—I think the paper answers the question so far as my view of it goes. I said in the beginning that he should not be deluged with methods and processes, but he must go to his practice work with his mind centered on the child, and then he should have knowledge of the subject and knowledge of what that subject will do for that child, and then the real presentation of the subject should come afterwards. And I believe that there will be a greater spontaneity if that is the order of procedure and the mode of approach than there will if we come to it in the opposite direction. Does that answer your question?

Mr. Mitchell—I do not understand the answer. I want to know, as a matter of fact, Miss Swart, whether high school students who come into the Normal school and get a smattering of ten weeks' professional review, in some cases, five weeks, if they, as a matter of fact, do develop spontaneity.

Miss Swart—I would say, No.

Miss Shultes—Is your student to learn his method of teaching reading, for instance, while he is practicing teaching reading? Is that your idea?

Miss Swart—My idea is this,—that he should come to the teaching of reading with as comprehensive a knowledge of the subject as we have been able to give him and of what it means to teach reading,—the purposes of teaching reading and what it will do for the child, and then make methods or means of bringing these two together, but I would not deluge him with methods about teaching reading before he understood in a large and definite way what are the purposes of teaching reading and what teaching reading will do for the child,—what he shall do for the child when he teaches him reading,—teaches him to read. I would have him brim full of purpose when he comes to the study of the "how."

Mr. McKenny—Am I to understand that the majority of failures in your practice school, or the majority of students who lack spontaneity lack it because they have not academic training, academic preparation for their work?

Miss Swart—I should dislike to answer that question with, Yes, and also I should dislike to answer it with, No.

Mr. McKenny—Let me put the question differently: Is it a lack of what we call academic training, or a lack of organization of what they already know and application of it to the particular work they have in hand?

Miss Swart—It is a lack of the latter. I think, President McKenny, it is a lack of appreciation of the situation,—a lack of power to imagine something to be done and a way of doing it.

Mr. McKenny—Would academic training save a person from that situation?

Miss Swart—In this way: Academic training,—academic teaching may be so done as to fill the person who is studying the subject with a profound love for and a deep interest in it, and this inspires him.

Mr. McKenny—But in the third grade,—in the fifth grade where geography is to be taught,—I would like to ask if the academic teaching is so done that the teacher will know how to apply it to a fifth grader?

Miss Swart—I should say not.

Mr. McKenny—Then the failure is not so much in the lack of knowledge as the lack of organization of that knowledge for that particular end,—in the fifth grade, for instance?

Miss Swart—It is still both in my experience.

Mr. McKenny—True, but which the larger? I press the question for information.

Miss Swart—I think the larger is the latter,—lack of ability to organize what he knows and to present it in an adaptive way.

Mr. McKenny—That is my experience.

Mr. Mitchell—I asked a class of high school graduates the difference in the direction of Jerusalem and the New Jerusalem. They did not know a thing about it. I asked them the width of the equatorial current in the Pacific ocean. I got answers running from four rods to five hundred miles. Not a single soul came within twenty-five hundred miles. I asked the width and length of the Mediterranean and got answers running from five to twelve miles,—five thousand miles wide and 150 miles long. What spontaneity can a practice teacher develop under conditions like that? Her only saving grace there is that she does not develop very much.

Mr. McKenny—We do not get enough of it in our Normal schools. We have too many ten-weeks' subjects. Still, my position is simply this: That any high school graduate who has been in the Normal school two years should develop power to get hold of enough information to teach fifth grade geography, if he knows what is wanted in that particular grade. In other words, while I emphasize the academic training, I feel that where our teachers fail most is in the recognition of what the child needs in that particular grade. I stand by the academic training and back of Mr. Mitchell in all that he says. I was not depreciating that by emphasizing the other point.

Mr. McNeill—How may the practice teacher be inspired with the

greatest amount of hope? What does him the most good, to point out his errors sharply, or to point out the way he should go and keep pushing him on in that direction?

Miss Swart—I should say the latter, decidedly. I have had two periods, perhaps more, in my experience as supervisor of practice (and I am not sure that I nave had much training as a supervisor of practice, so the practice teachers themselves have taught me most of what I know, and that is not much)—but I believe, as I have said in this paper, that there is nothing so inspiring to a person as to see the thing done, see the way he is to do it, see the value of it when it is done and the importance of doing it, and so I believe that a person's error, or failure, whatever it may be, should be shown him; he should be made to see that it is wrong, but not in a spirit of reproach. He has done it and it has passed and gone. He can remedy it. If it is simply a false idea, it is not serious because he can change it the next day. If you can get him to see that it is wrong, why it is wrong, and wherein it is wrong, and get him to lay it aside, his failures will become stepping stones and not weights to drag him down. He rises above them and they are actually the ladder by which he climbs to something higher.

Mr. Patzer—Do you require your students to make careful preparation before you permit them to teach a particular subject?

Miss Swart—They make lesson-plans.

Mr. Patzer—Do these lesson-plans that these students are required to make cover any particular period of time?

Miss Swart—They are usually made out for a certain portion of a subject and the portion is a unit of some sort in the treatment of the subject.

Mr. Patzer—Then some days before he is to take up the work, he has planned that work. Does he always manage to do on a certain day what he has specified in his preparation he was to do?

Miss Swart—I should be sorry to confine it to that.

Mr. Patzer—You allow latitude in that direction.

Miss Swart—All they need.

Mr. Patzer—Suppose these students have taught a subject well for a few weeks, would you allow them to organize some unit of work in a general way, and then give them charge of the class with these directions: "Do as we teachers in the Normal school do. Teach today and in the light of your experience in today's work assign your lesson for tomorrow and make your preparation for tomorrow's work. That is what we do." Would not that encourage spontaneity?

Miss Swart—I should let them always do it. They may say: "I have not used the plan as I had planned." "What is the reason?" They give their answer. I would say: "I am glad you did not." A plan should always be subservient to the judgment of the practice teacher.

Mr. Patzer—This illustrates, then, a point which Supt. Harvey made in his first address, Monday morning.

Miss Swart—I think it does.

Mr. Patzer—And if for some reason or other we insist upon the student's carrying out to the letter the plans made for the next week, we may have mechanical teaching?

Miss Swart—I think it would be a certainty.

Mr. Salisbury—I am a little in trouble about taking a practice class out of the hands of the practice teacher upon occasion. I can see that the supervisor may take this class in the kindest way, without hurting him, but can it be done without hurting his standing in the minds of the children? Is it possible for the supervisor to take the practice class and not have it count as a condemnation of the practice teacher in his work?

Miss Swart—I believe it is entirely possible. I believe it is entirely possible to do it in such a way, and to so talk about what you have done and to so present the whole matter before the class as to lead them to think even more of the teacher than before.

Mr. Lough—It seems to me that these points should be considered: 1st. The particular purpose of the lesson. 2nd. The subject-matter to be used. 3rd. The mental operations which the child must go through to use this. I can use the same material for judgment, for reason, for memory work and so on, and I can choose which of these operations I shall have take place in the child's mind. The failure which most often takes place in teaching is the failure to recognize the end of education, or what this particular lesson is to do. Is it a failure to recognize what is the appropriate or proper or possible mental operation to be performed at that time, or is it a failure to present the proper subject-matter? Where does the teacher usually fail, and where would you like the greatest amount of spontaneity? I think they fail as often as anywhere in the selection of the means by which the mental operation is to be brought about. I do not think they have, as a rule, so clear an idea of what mental operations are required as they should have, and I suspect that they do not have in mind in any recitation the end of education. I think they do have in mind quite clearly the purposes of the recitation, but I think that they do not always have in mind the mental processes that must be performed in order to secure that end, and they are not skillful in securing the material which will bring about these operations. Because, whether they have a conscious notion of the mental operations or not, they have an unconscious one, and in order to select the proper means for this operation they have to be conscious in the selection of the means. Professional reviews are for the purpose of supplying the pupils with the proper means of producing that mental operation in a given grade, and the pedagogical department has for its purpose the teaching of what mental processes take place at different times. I think that the reason why they do not know so much about the means is because they do not as a rule have the knowledge of the subject-matter which they ought to have. They do not see the possibilities in the subject-matter.

We were talking a great deal this morning about the essentials in psychology, i. e., the science of thinking. We all claim that the chief business of the teacher is to teach the child to think. We all claim that thinking is the seeing of relations. Practice teachers rarely recognize relations. They do not know the kind of relations that exist. Therefore, they are unable to get the child to see a relation which they themselves do not see. The reason why they do not see relations is partly because they have not sufficient knowledge of the child and partly because they have not sufficient knowledge of the subject-matter.

Mr. Salisbury—Concerning high school graduates, do you find that previous experience on the part of the high school graduate makes him any more ready for your work, the practice work?

Miss Swart—Yes, I think so.

Mr. Salisbury—Does he need to spend any less time in practice work?

Miss Swart—He has something which a person without experience does not have.

Mr. Salisbury—Blunders, perhaps. Would it not take more time to correct his mistakes?

Miss Swart—No, I do not think so. The people who come with blunders that are troublesome are the people who have taught many years in a bad way. Young teachers are not so fixed in their blunders. If he had taught only ten weeks, he would have a better apperceiving mass than if he had no experience.

Mr. Rockwood—More conscious of difficulties?

Miss Swart—Yes.

Mr. Cary—I want to confirm that from my own experience. I would vastly rather have a person with three months' experience in teaching for training as a teacher. It does count, even if it has been full of blunders.

WORK IN MODEL SCHOOLS.

Mr. Cary—I have written a very brief paper, partly because in my judgment papers are too long and much more time should be given to discussion. By way of explanation I would say, whatever may appear in this paper that I am to read that may seem dogmatic is not written in a dogmatic sense. I have not expressed myself in that way, although I may seem to have done so. Furthermore, I have not meant any criticism upon my colleagues. It is my judgment that we are working under rather unfortunate conditions. We are trying to do with these high school graduates three or four years' work in two. All along the line there is going to be failure, in all probability. Just what is the best solution, I am not sure, but I suggest some things here that may possibly be worth discussing. May I ask you, while I am perfectly willing to attempt to answer questions,—may I ask that you discuss this paper rather than question me as to what I mean. I am willing to answer questions that may arise, as it seems to be the fashion of the meetings. If you have anything to say that is contrary to the thing I have said, do not have any fears that you will hurt my feelings if you say it.

WHAT KNOWLEDGE OF THE WORK IN THE MODEL SCHOOL SHOULD TEACHERS OF PROFESSIONAL SUBJECTS HAVE? WHY? HOW MAY THIS KNOWLEDGE BE SECURED? HOW SHOULD THIS KNOWLEDGE BE UTILIZED?

C. P. Cary, Milwaukee.

If "work" as used above is to be interpreted in the ordinary sense and psychology is to be taught as it now ordinarily is, there is little reason that I can see why the teacher of psychology need know anything about the work of the model schools. This subject is taught in colleges without any reference to children,—why, then, is it necessary in Normal schools? Introspective and *a priori* work, together with some reference to the literature of investigations carried on by uni-

versity men and other specialists, seems to be enough. Psychology deals with the ordinary facts of consciousness, and of course the facts and principles discussed must fit the pupils of the model schools, or of any other schools, for that matter.

The teacher of pedagogy may be just about as independent; for does he not deal in the main with general principles, rules, and maxims? General method is the main thing; special method is a sort of nuisance, a perplexing and annoying thing to be reduced to the smallest possible dimensions, and in the main is to be got from some writer who has had the temerity to venture into the field because he had no reputation to lose, or who had a genius for details rather than generalities. To get such instruction mixed up with the practical affairs of the model schools might result disastrously to the facts of actual experience.

For the work of observation and the discussion of the same there should, it is evident, be some knowledge of the working of the model schools and of the course of study. This knowledge can be obtained by studying the model schools at first hand and by questioning the critic teachers and the supervisors of practice. This may in some degree be done in connection with the work of observation, though some preliminary work in this direction would doubtless be time well spent.

The teachers of professional reviews should know the work of the model schools at least sufficiently well to point out differences between their work and that of the model schools, if such differences exist; and similarities where those exist.

But I doubt not you are troubled with the thought that this is a very narrow way to look at the matter. Granted. But is it not the way we have been looking at the matter all these years, if one may judge by the actual practice of the schools?

It is unnecessary to raise any question as to the value of the discussion of the general laws of psychology and pedagogy. The Normal schools should teach these things and teach them well. They are practically valuable in determining what not to do if not in determining what to do.

But the teacher's trouble comes not so much in dealing with the general facts of psychology and pedagogy as in dealing with the individual problems relating to the treatment of John and Mary. A one-time teacher in a Normal school and a graduate of a Wisconsin Normal school once told me that when she began her work as teacher she was continually burdened with her psychology and pedagogy. She did not know what to do with either in view of the concrete problems of the schoolroom. Finally, she said, she cast everything theoretical to the winds and sailed into the work on a common-sense basis and made a success of her work. Probably this teacher's case was similar to that of many others except that others are not usually so much impressed with psychology and pedagogy as to be obliged to make a conscious effort to cut loose from them. But when we stop to analyze the thing that troubled this teacher and the significance of her act we find that the trouble was that her theoretical training and her everyday experience had not made a chemical combination, so to speak. She had trained up a theoretical sense and a practical sense, and they would not work together. In all such cases practi-

cal sense is sure to win out. This practical sense in such a case is mainly unconscious imitation of the work of teachers with whom the person has come into vital contact.

This sort of a divorce between theory and practice is bound to take place in some degree unless provision in instruction is made against it. The only way to make provision against it is to study the child in the concrete while studying the general principles of psychology and pedagogy.

What we want most of all is to develop a habit in the person who is to become a teacher,—a habit of depending upon general principles only for very general guidance in the management and instruction of pupils; and a habit of studying in a sympathetic way the individual pupils with a view to discovering their tastes, interests, stage of development, and other individual peculiarities, and condtions. In short, a teacher may philosophize ably about teaching and yet understand children but little and succeed miserably in his efforts at teaching children.

Barnett, one of the most helpful of English educational writers of the present day, says truly: "The endeavor to lay down rigid rules of procedure in teaching is a serious error in education. It would have its analogue in medicine if the physician prescribed for his patients without seeing them, by sending a printed formula of directions in reply to an inquiry by post. It is precisely in the diagnoses of different cases and in the variations in treatment required by different individuals that medical skill does its most characteristic work." The teacher's special work calls upon him to take more serious note of diversities than resemblances. The philosopher in his study, the psychologist, or the logician, may lay down the general laws of the growth of mind or the conditions of valid inferences, but the teacher has to keep his wits alert to modify his treatment from time to time so that it may suit Tom, Dick and Harry at different times, in different places and with different subject-matter. In comparison with a practiced wit and sympathy, mere theorizing is naught.

The great things in teaching are tact, skill, and sympathy. These things are worth cart-loads of books on pedagogy and psychology, and endless hours of lecturing on the part of doctrinaire professors. Now, tact, skill, and sympathy are more or less native qualities, yet all of them can be cultivated under conditions, and one of the indispensable conditions is frequent and friendly contact with children. Sympathy grows with the understanding and insight into child mind, and with sympathy and insight, tact develops. These factors act and react upon each otner in a vital way. Skill comes of practice under favorable conditions,—that is, when backed up by insight and sympathy.

Tact, insight, skill, sympathy, thorough and comprehensive knowledge of the subject-matter,—these are the things that every Normal school should aim to secure at all hazards, and failing in any one of these the failure is vital. Nothing else is vitally important. Cut-and-dried schemes of procedure in teaching, memorizing the formulated rules of pedagogy and the laws of psychology contribute matters of doubtful value. In fact, the result is undoubtedly evil and evil only if handled in the cock-sure manner of the old-time educational dogmatist. That life cannot come out

of death needs no argument. Prof. Royce was in the right when he contended a few years ago that "the teacher should be a naturalist, loving and as far as may be comprehending in a scientific way the life of childhood and youth, just as other naturalists try to comprehend the life of other organisms." Whenever we succeed in raising up an Ernest Seton-Thompson of childhood we shall have an educational philosopher and reformer in the one individual.

But you ask, what are the changes to be recommended? I reply, make the model school the veritable core of the Normal school. Make it what the laboratory is to the chemist and the physicist. So arrange it that the teachers of professional subjects shall not only know what work is done in the model schools, but shall along with their students know the individual pupils of the model schools as subjects of sympathetic and appreciative study, not as so much lifeless material for cold scientific investigation. In this direction only lies the salvation of the teachers of professional subjects from shriveling up and becoming "hide-bound pedants without knowledge of man's nature or of boy's." In this direction alone lies the safety of the Normal schools as a whole, if they are to escape the danger of aping the college and the university. The Normal schools are but half aware of the fact as yet that it is their specific function to train teachers, and I may add, to train teachers for the elementary schools. When we come to realize our true function and direct the work of the schools absolutely from that standpoint we shall succeed as we have never succeeded before. Briefly, then, to summarize my answers to the questions with which this paper began, I should say that the teachers of professional subjects should have time and opportunity and the disposition to know all about the work and the pupils of the model schools for the reason that it is indispensable that they should. This knowledge, which can be secured only by by treating the model schools as their work-rooms, should be utilized in their daily work of instruction, and the students of professional subjects should make it their business to study children in the light of the discussion of the lecture room and should interpret the lectures of the lecture room in the light of their observations. Observation is the proper starting point for discussions of method and likewise the point of return.

Mr. Jegi—The discussion of this topic will be opened by Professor Bowman.

DISCUSSION.

G. L. BOWMAN, West Superior.

The teacher of professional subjects in a Normal school ought to know what kind of work should be done in the model school and how to do it. He must look to the true psychology of his subject for his ideals, because a subject psychologically taught is practically taught. If he knows what ought to be taught and how to do it, he can give force, definiteness, and vitality to his own teaching, and, at the same time, furnish a high type of right teaching to his own pupils who are to teach later in the model school. Besides this, he will secure will-

ing, careful, conscientious preparation and recitation from them. This has a direct, wholesome effect on the ideals of the practice teacher in the model work. It enables him to be strong in his counsel, clear in his suggestions, and wise in his decisions. He ought to know what is done in the model school. What the purposes, plans, and methods are. This would aid him to adjust his instruction to fit somewhat the condition under which the pupil will likely have her first lessons in the practice work of teaching. Familiarity with the work of the practice school enables him to cite conditions there illustrative of the thought in his classes. Furthermore, he can handle intelligently reports which might be wisely considered in connection with the work of his own classes.

He should have a thorough acquaintance professionally with the practice teachers doing the model work; for this would permit of a closer touch with the teacher in her work, a better understanding of the particular difficulties, and would result in greater helpfulness to the student teacher. These same reasons would imply the necessity of knowing the pupils of the grades well enough to interpret conditions rightly, to give special instruction in his own classes to meet any special adaptations to the model work.

He ought to know, at least in a general way, what the lessons, outlines, and plans for the day are and how they are made out. I do not mean that he should have this knowledge in detail, but in a general way so that a little inquiry would give him the full lesson content for the day. Knowing this he could send special committees of his own class to observe and report to his class. I can see two good things in this. Some persons can learn much more by seeing an exercise after the principle has been discussed than by making a recitation on imaginary class conditions. Again, students who are specially weak in some phases of the professional subjects could have valuable work of a supplementary nature given them in the written reports that the teacher could arrange for them.

He ought to be fairly familiar with the difficulties that are coming up from day to day in the model work and should know of any special lines of strength. This would keep him interested in original investigation, the trying of new plans, or the testing of new devices. The field would be much better opened to him in some of his own investigations. Not that the practice school is to become the hot bed in which he is to sprout new educational theories, but a field where he can sift the tares from the wheat of his own educational thought and practice. It is a good thing to watch some one else try to use your notions, your theories, just to show you how queer they are when under the guidance of some one else. A close study of his work as it must be applied in the model school would rid the teacher of professianal subjects of many educational foibles. We learn much of ourselves when we observe how our pupils play school.

In concluding this part of the discussion, I would say that a good knowledge of the organization and operation of the model school is indispensable to the best teaching of the professional subjects.

Now as to how this knowledge is to be obtained and what is to be done with it by the teacher of professional subjects:—It seems to me that the only reason for the teacher of the professional subjects to know anything about the model school is the possibility of use in his

own teaching. Therefore, I think I have answered the question as to the utilization of the knowledge as well as I can when giving the reasons why he should know the several items cited in first part of my discussion. I think it goes without saying, the model school is the nearest best thing to keep the Normal teacher's memory alive to the character of his earlier experience as a teacher in a similar position to that of the practice teacher. I should say then for this, if for no other reason, he should know much about the model grades wherein his students are to make their first attempt to make a practical use of his teaching. I think I can dismiss that part of the discussion at this point and pass at once to the answer of the question of the means for securing proper knowledge of the work of the model school.

I believe it is of prime importance, at the outset, to have in permanent form a general statement of the leading propositions that are to constitute the subject-matter of the professional instruction. This outline should be the joint product of the Normal department and the practice school. It should contain the fundamental principles and propositions arranged in accordance with the logic of the subject and the demands of the practice work. It ought to contain the book references and where the subjects admit of it, the texts valuable for collateral reading. It would be no place for details but would be the platform upon which the teacher of professional subjects, the supervisor of practice, the critic teacher, and the practice teacher could meet with a common understanding. Such an outline carefully worked out would unify effort, save time and energy, besides furnishing a valid and intelligent basis for criticism and direction. Until this is done, it seems to me that all subsequent methods that I can suggest for gaining that desirable information must be quite unsatisfactory if not entirely worthless. I can see no valid objection to having such a document at least in type-written form. The first draft might not be the best thing on the subject, but it could receive modification from time to time as good sense would indicate till it would be the best expression of the institution on the theory and practice of that subject. Its value to the practice teacher whose practice must come at a much later time than the study of the theory, is patent to all. In the case which frequently happens in one school at least, that the student teacher takes her practice work before any professional work in the subject is done, such a document is almost indispensable in securing work that is valuable to the model school and such that the Normal school ought to credit. I know this will bind the school to a declaration but the school ought to declare. Its value in the event of a change in the faculty must be clear to everyone.

The teacher of the professional subjects ought to observe the work of practice teachers as far as possible to see that his own instruction is rightly interpreted. To this end he will need to have a clear idea what the assignment is, should see the entire exercise, and then perhaps further discuss it with the critic teacher. He could make any criticisms that might occur to him but they should be made in the presence of the supervisor of practice, or the critic teacher, or both. I think that criticisms made only to the practice teacher and in private may sometimes be of more harm than good. A statement made to the critic of practice would be better than anything that I know of

for that would still retain professional direction of practice where it should be—under the critics of practice.

Frequent conferences between the practice critics and teachers of professional subjects ought to be the rule. As to how frequent these ought to come would depend upon the exigencies of the case in hand rather than the time interval between meetings. The critics of practice should visit the professional classes often enough to know the spirit and method of instruction for out of this would come the possibility of the Normal school putting itself clearly before a practice teacher—a thing the Normal school sometimes fails to do.

Visits of the teacher of theory to the meetings of the practice teachers with their critics would inform him of the spirit and content of the suggestions and directions given by the critics of practice. This would furnish an excellent means for that information that would prevent him crossing lines with the practice work in his own class instruction. He could later make a much more intelligent observation of the model work and be much more valuable to the model school and the pupils of his own classes.

Of course there is implied all through this discussion nothing but the highest courtesy to those associated in the theory and practice supervision. Each will respect the work of the other, looking only to the good of the institution and its great value to the practice teacher. I can see where there might be some chance of difference of opinion, difference in spirit and temperament, but with a wise president at the head to adjust and modify in the light of the largest problem of the school, there could be little chance of any serious clash. I am sure, as time went on and these associations became the rule, that all work wherever it might be planned, would take into consideration all the factors that have a direct bearing on the proposition.

If former outlines of specific exercises that were more than ordinarily successful, or had the mark of originality and merit, whether made by practice-critic or by pupils, could be preserved for the inspection of other pupils in the classes of professional subjects, another means, highly valuable to all interested, would be secured. I am sure these are of value to those pupils who, in many subjects, traverse the same ground. I have no doubt that many of these are preserved by the practice school now but they do not as a rule come to the notice of the teacher of theory. The preservation of that meritorious practice literature would serve some other purposes than to furnish certain information. It would have a tendency to induce better preparation by pupils in the professional classes. They would perceive the ideals to which former pupils attained and this would encourage them to put forth the best effort of which they are capable. It would induce pupils in the practice work to reach for the best that is in them because it would increase the tension between what they are and what they believed they might be. I have no doubt it would open the professional eyes of the teacher of theory by showing him new possibilities and by rubbing the moss off of some old pet notions. I think that this would be one of the best means within our reach to reflect the life of the practice school into the thought of the professional classes.

I have purposely left out personal interviews of the theory teacher with the practice teacher for information on questions of practice, as I believe such interviews lead too frequently to wrong inferences if

not closely followed up with the procuring of information from sources where the generalizations are from broader views. This does not preclude those discussions that are of frequent occurrence now where the pupil seeks an answer to her difficulty from the largest experience the institution can afford. But even here, unless the member of the faculty has his share in the institutional intelligence, he may so conduct himself as to bring greater confusion into the thought of the student than was there before.

I shall close this part of the discussion with a reference to the illustrative class exercise as a means for gaining knowledge of the model work. I believe this means to be much over estimated both in its power to impart information and its power to instruct. In the first place it is limited, as every class recitation is, by the conditions under which it is held. These conditions are never the same in the illustrative exercise as they are in the actual school. I have seen such exercises given in an association using the members of the association as pupils. I have seen its possibility of variation exhausted, almost, by different members playing the part of the naughty boy, the simpering girl, the smart "Alick" boy, the bashful child, etc. These exercises are so frequently misleading. They emphasize form and draw attention to the acting so much that they serve little more than to amuse. They never inspire, they seldom present high ideals either in acting or in teaching. Even when the children are actually taken before an audience to perform specially there are so many unseen elements in the whole situation that the true pedagogy of it can not be estimated. It being a special performance, both teacher and pupils are under different psychical conditions than in the everyday work of the school. Special preparation is bound to be made, special attention is bound to be given both to plan and actual presentation so that the exercise seldom does more than to show the only thing it can show, that is type or ideal results of some previous line of work. For the teacher of professional subjects to go down into the practice school once in a while to take a class would, it seems to me, besides being possibly an encroachment upon the prerogatives of the critics of practice, lead to some harmful results in leading the young people to think more of the form that appeals to the eye than of the substance that should appeal to the spirit. Here is a transposing of functions akin to that when two ministers exchange pulpits. There may be a rest to the ministers, a change for the pews, but the personal element is the subject of comment afterward instead of the sermon.

I have sought to see a way to secure this information and use it to the best interests of the school without increasing the number of critics per practice teacher. I have sought to secure a more far reaching, a more definite, and a more up-building criticism through a union of the forces in the school as they appear now, and through harmony of action without an encroachment of one function upon the rights and privileges of another. I have sought a way by which the criticism of the practice teacher should come from the institution and be recognized as the criticism of the institution and not as the personal whim of some dissatisfied teacher. Cross lines in comments on the practice teacher's work can scarcely avoid giving the impression that the criticism is largely personal and not institutional. I have believed that this will interfere less with the spontaneity of the practice

teacher, lighten the burdens of the critics of practice, and lead to a fairer interpretation of the Normal school to the prospective teacher.

Such an arrangement would need more time on the part of the teacher of theory and, perhaps, a new adjustment of program in order to reach the ideals expected by this discussion, but I believe the change would not be great. By distributing the vacant periods as much as possible, the teacher of theory could reach the work of the practice school and the conferences of the practice critics more frequently than if his vacant periods were bunched. It would necessitate more time, perhaps, at the disposal of the practice critics than at present, but this bringing all the forces of the school to bear properly on the question in hand would greatly increase the time by avoiding the duplications that must occur when such an arrangement is not the rule. I can see, I think, that as times goes on there will be less need of the frequent practice teacher's meetings by having more efficient ones when they are held.

If I have made myself clear on paper as I have tried to be clear in seeing this, then my discussion stands as a plea for a union of effort through a common or institutional intelligence in which each member of the faculty shall have his rightful share and by which the pulse of the school can always be known.

DISCUSSION—GENERAL.

Mr. Jegi—While I do not want to cut off discussion, I should especially like to hear from teachers of model schools on this question. What do you think? I hope you will be perfectly free in expressing yourselves.

Mr. Lough—It seems to me that we might suggest the other side of the question,—What can the teachers in the model school make of the work in the professional classes? I would suggest that you co-ordinate the work of the model school with the theory in the professional course, as well as the professional course with the model school. I try in my work to go half way to the model work and I would like the model school to come half way to me. I should like to have the teachers in the model schools use what theories I present, or give me better theories. If I present a theory I should like to see that carried out. If not, show me a better one and I will accept it with pleasure.

There is only one topic I would like to suggest. In reply to some attacks upon psychology, there are two explanations,—one suggested by a story I heard of a young Englishman who was speaking of the poor manners of the Americans and who said—"They eat pie with their knives over there," and was met by the answer:—"What poor letters of introduction you must have had!" The other is illustrated by a personal experience a good many years ago:—I got hold of some cream pie and I ate so much of it that I have never eaten any cream pie since. There is as much danger in reading too much psychology as there is in reading too little.

Mr. McKenny—The tendency of every professional teacher is to work out an original way of doing a thing. I recall a teacher of mathe-

matics in Michigan who got out a series of text-books based on the methods which he used in his classroom. So far as I know, they were never used in any other school in the United States. Even the teachers under his tuition could not put the text-books into practice successfully. What is true of that teacher is true of teachers in other schools. They look at professional reviews in a way entirely different from the way the model teachers look at them. They want to get some original way of organizing this material. It has occurred to me that, since in nine tenths of the schools of this state—in ninety-nine out of a hundred—the work of the teacher must be organized on the basis of some text-book in use, our professional work in the Normal school should be organized on the same basis. If the teachers in history knew how to take a text-book in history and use it, they would be worth a hundred times more than they are today.

Instead of the critic teachers going half way to the professional teachers, I am inclined to think that the professional teachers will have to go nine tenths of the way to the critic teacher. This is no reflection on the professional teachers. I am one myself. But we are not in daily touch with these boys and girls. In proportion as we are away from the model school we are disqualified to pass upon the method. We must, as teachers of psychology, teachers of professional subjects and teachers of pedagogy, if necessary, go all the way to the model school first. We must get down there. I think, while we have a right to pride ourselves on our method of teaching a subject, it should not only be tested in our own classrooms, in our own subjects, but by the average teacher. It is not the teacher of professional subjects who must try this plan. It is for the average teacher. We must make our plan for the average teacher. The professional teacher must know what the average work of the average school is, not simply the average work of the model school. He should know what is done in the average school of the state. Not that he should descend to their level, but he must start at that point if he hopes to lift them up. He must begin there. To that degree must the professional teachers descend before they can actually begin to do safe work in the school. I think we are going to come to that in Wisconsin. I think it is a just criticism upon our professional teachers that we do not know intimately enough the work of the average teacher and the average conditions in Wisconsin.

Miss Swart—I believe it is true, thoroughly true, that the teachers of professional subjects are so far removed from actual experience with the children, with the actual adaptation of the subject to the children, that the subject is not so well handled by them as though they were brought into closer contact. It is also true that the teachers in the model department do not have the time or opportunity to know the subject, they do not have time to study up the bibliography of the subject. I believe it is the duty of the person who teaches the work upstairs, the one who has these professional reviews, to do two or three things in that line for the model school. One is to determine what is the true order of topics in the subject; to determine what ought to be known in that subject; to determine what is the best literature on the subject up to the last day; to extend that information to the people in the model school and to make out at least a provisional course of study in that model school. The teachers in the

model school may know about the adaptation of the subject to the children, but the progress of the subject in the field they do not know and cannot know. They do not have so good an opportunity to know the content of the subject and the order of the content of the subject as people do who spend their entire time on the literature of the subject. From the subject-matter side, the professional teacher upstairs should come half way. From the children's side the teacher downstairs should come half way and there the union of the subject and adaptation can be made. And no one person can know both of those sides equally well, it seems to me.

Mr. Mitchell—It is all right to take up a text-book and outline the work and indicate the method that should be followed with that text-book, but * * * * * * * * * * You have to work on what is. You cannot work on what ought to be.

Mr. Emery—Will you explain?

Mr. Mitchell—Yes. If I should go to work and name any text-book on geography, for instance, I should have the whole school book force down on me.

Mr. Emery—I believe it is within the province of the Board of Regents of Normal schools, as it is within the province of the district board or board of education, to adopt a system of text-books that is legal for that school. The trouble is that it is so frequently not done legally. When it is legally done, no matter about the clamour of book agents.

I want to make one or two remarks while I am on my feet. I do not know that they are germane to the subject. I have been impressed this afternoon with the different points of view. I have heard so much about lack of time. That is the point of view of the teacher. From the standpoint of one administering the affairs of the schools, the criticism is likely to come about this way: "That teacher wastes so much time. There is so much of wasted time and energy in the handling of that subject by the teacher. Cut this down. Eliminate non essentials and get at the core of the matter." There is the difference in the point of view.

And there is one thing more I want to say. I do not think the work of the critic teacher has been exaggerated here this afternoon. The critic teacher has my sympathy.

Mr. McKenny—I get a teacher in history from a Normal school and she knows absolutely nothing about using a text-book effectively. In geography it is the same. She does not know how to eliminate; she does not know how to bring in other material to supplement that text-book.

Mr. Patzer—I would like to go a little further. If these teachers of professional subjects are to assume such large responsibilities, it does seem to me that those subjects which they teach should be magnified just one little bit. For three years in the Milwaukee Normal school, I attempted to teach professionally that broad subject of geography in four weeks and a day. I do not care to have people outside of Milwaukee judge my work by the people I have turned out who have had just twenty-one days of training. I believe most heartily in the thought expressed by President McKenny, that the text-book should be the center of instruction and that we should build around it. Then the question comes: Is every text-book to be used in exactly the same way? I say, No. I believe it is the unanimous opinion of the

people present that we should not; but we ought in our work to center our attention upon some one book so that the teachers may realize how to use that book to the end that they may be able to use any book in any school where they may at anytime teach.

Mr. Sims—I wish to say something along the same line with Mr. Patzer. It seems to me that in using any text-book, the teacher of professional subjects must ever strive to lead to the better organization of the material in that text-book and we certainly ought to advance these ends.

Mr. Rockwood—Every text-book seems to be in need of revision in order to suit us. That is because we did not write it ourselves.

Mr. Patzer—I think that is so, and if I were to write one today, very likely I would revise it tomorrow.

Mr. Rockwood—Like Robert Collyer's religion.

Mr. Patzer—I believe that remark of yours is pertinent. I believe there is too much work of this kind going on in the schools of this country. We are constantly changing our text-books. In a general way it is well and good. However, shall we question too often the declarations of the book we are using? Shall we say:—"While this definition in this particular book is all right, I have a better one? And so we introduce that "better" one only because it happens to come from our own inner consciousness. And we try to improve the next one, and bye and bye the children say:—"Well, I guess our text-book is no good. I guess we are not getting very much out of it."

Mr. McGregor—It seems to me you are misinterpreting what is meant by the term "text-book." If we look back at the evolution of the term we find that it was a text printed with wide margins and wide pages for the purpose of making additions. We should consider it as a preacher does in using a text. Any book that has been written by any qualified man or woman should form a fair basis to work upon. I am not so particular what the text-book is, provided I can go along and do a little supplemental work.

Mr. Rockwood—It would not be like the text of some sermons, to be departed from and never returned to.

Mr. Jegi—We have not yet heard from the critic teachers.

Mr. McKenny—They need encouragement. I know of some critic teachers who can talk straight to the point.

Mr. Jegi—Call out some of them.

Mr. McKenny—I would like to hear from Miss Doyle.

Miss Doyle—Everything that has been said this afternoon is good. I am still thinking of what Miss Swart read. I am glad she gave us what she did. Going back to that question of spontaneity, I wish that the students could be sent to the practice teaching with a greater knowledge of the subject and a love for the work and some knowledge of the children with whom they are to deal, and I believe spontaneity would come.

Miss Fox—We do some work in our school which has been beneficial to the practice teacher and the professional teacher. In finishing up a subject or a course in history, for instance, Mrs. Madden has taken her students into the model departments and spent a week in observation there. Then the class discussed with the teachers these lessons. The same thing was done by other teachers,—with our library people, and I think anyone, in hearing the discussion by the profes-

sional teachers, would realize how much in sympathy they were with the model school work, how well they understood the work there and how very beneficial that observation work was to all concerned.

Mr. McNeill—I believe that the meeting this afternoon is worth all that this institute has cost the state of Wisconsin. I believe that there is a growing together that will manifest itself in much better and more sympathetic work in all the schools.

Mrs. Bradford—A suggestion was made this afternoon that it might be considered a duty on the part of the professional teachers to help the critic teachers to outline a course of study. Our teacher in history interested himself to such a degree in our work as to come down and assist us in making out a course of study in history for the practice school extending from the third grade to the ninth. And it was said: "Why have you allowed history to crowd out other things?"—history being more manifest in our practice work.

Mr. Emery—Did this professor of history make out this course in his room, or did he come down and study your needs?

Mrs. Bradford—He studied the method that was being proposed by the supervisor of practice.

Mr. Emery—He challenged it?

Mrs. Bradford—He came down and took the sixth grade and found that it would not work. Perhaps that was the beginning of his interest. From that on his interest grew. He visits the practice teachers regularly. I am always sure of a source to which I can refer teachers for matter in instruction, because he is right at hand with whatever they need in that line.

Miss Shultes—I have felt the need, in my experience, of this harmony in understanding of method and in arranging a course of study and believe that it would greatly strengthen both departments of the schools if there could be made out a course of study which would have the approval of all departments of the school, under the supervision of the academic and professional departments, and if also there could be a common understanding with reference to the method of instruction, especially in the lower grades. I find that practice teachers sometimes anticipate or fear discrepancies because of something perhaps not previously understood and they appear in the presence of model teachers and directors of practice work not quite familiar with the point of view taken by us. I certainly look forward to the time when there shall be in all Normal schools a perfect understanding from the kindergarten up to the highest department of the school with reference to the course of study and with reference to the method of instruction.

Mr. Jegi—You have a course of study?

Miss Shultes—Yes.

Mr. Jegi—You mean a more detailed course?

Miss Shultes—We have a coure of study. It is an old one that we have been using for some time. I think it was made out by the president of the school in conjunction with the critic teachers and some suggestions from myself. It was made out without taking into consideration the heads of departments. I think we would have been very much helped on our side of the question if the heads of departments had been consulted. When a new course is made under con-

sultation of the whole faculty, it will harmonize the methods of instruction.

Miss Rogers—The last remark of Miss Shultes brings to my mind this: I wonder how many Normal schools in the state there are where the teachers of professional subjects have been invited to take any part in making out a scheme for the lower grades. I wonder how many schools there are that have done this. The criticism comes from the other side that the pupil has not a sufficient amount of knowledge on the subject; when the fact is that the pupil may be a high school graduate who has not hand any training in the Normal school whatsoever. There is another thing. The Normal school pupil is told to use a text-book, we will say ———'s Advance Geography. That teacher goes into a country school to teach and is obliged to teach ———'s Geography. They are about as much alike as oil and water. The school authorities come back to the Normal school and say: "We don't want such a teacher again. We don't want a Normal graduate to teach in our school again." It is a very fine thing to know how to use a text-book.

Miss Hendrickson—My knowledge of Wisconsin Normal schools extends over a period of but four months. You must pardon me if I ask some questions. I do not know whether the Normal schools in Wisconsin exist for a different reason from that in other states. My idea of the purposes of Normal schools has been that they exist to prepare teachers for schools as they exist, and it seems to me also their purpose is to improve those schools. How is this to come unless it comes at the hands of people who have charge of the professional subjects? If teachers of professional subjects come to the model school for methods are we not in danger of going on and on in the same old way?

Mr. Jegi—Let us hear of the work which has been done by the teachers of drawing in supervising the work in drawing.

Miss ———— —In the first place, we arrange our drawing periods at such a time that it leaves us free to visit our model departments during the regular recitation with the children, and our work is supervised downstairs. The practice teacher goes to the supervisor for her plan of work. She submits the plan to the drawing teacher and the critic teacher afterwards. The work is especially under the supervision of the drawing teacher.

Mr. McKenny—Who passes the final criticism?

Miss ———— —I do not know as there is any final criticism. We work together. The supervisor, drawing, and critic teachers work together. I do not know of an instance where there has been a disagreement between the drawing teacher and the critic teacher. The critic teacher gives more criticism along the line of class management. The drawing teacher is more interested in the artistic phase of the work.

Miss Strong—The planning and the management of the work in drawing in my department have certainly been most satisfactory. The planning is done by the teacher of drawing in the Normal school, and she has not only done the planning of the subject-matter of the lessons, but she has interested herself to come down into the department to show her practice teachers whom she sends there how to carry on the work. She gives her criticism to the drawing teacher and I

give mine. We have always talked over the work freely and in no case has there been a disagreement.

Miss Swart—If I may be permitted to say a word, I think Miss Rogers has an excuse for saying what she said. In the words of President Cleveland, "It is a condition that confronts us." And the condition has had a historic reason for being. It exists, not on acount of any tremendous failure on the part of the professional teachers on the upper floors, but it has simply come about just as other things do. In the beginning the Normal schools were small, and the president knew all about everything that ought to be done in them. I am not saying they do not now. But the schools have grown to such proportions that it is a human impossibility for any one man to manage every department. And this same condition is true concerning the supervisors of practice. Time was when they were expected to be specialists in all directions. Time was when there were no professional reviews, and then we came to a time when we did have some professional reviews. It grew out of the theory that the president of the school could manage and must manage. And I think how much of that exists still. I believe that is the reason why this condition of things exists. We all know that it is very difficult to keep up with one's opportunities. The Normal schools are making a tremendous effort to grow and to keep up with their opportunities. I believe Miss Rogers is right. I think it is not in the atmosphere of the Normal schools to a sufficient extent that the teachers of professional branches breathe it in. In my connection with drawing, music, gymnastics, etc., the course of study has been laid down by the teachers and nobody would think of interfering. Two or three things have made it difficult for the professional teachers and the supervisor of practice and the critic teacher to get together on some points. In music and drawing the reason has been that nobody else professes to know anything about those branches? A certain amount of modesty is required in the critic teacher and in the supervisor of practice in respect to the subject matter and what ought to be done with it.

I think that the administration of Normal schools in this state has not sufficiently recognized the fact that the professional teachers have a right, and not only a right but a duty, along this line, and I do not think it is the fault of the professional teachers that they have not recognized their duty and demanded their rights.

Mr. Brier (In response to request of Mr. Jegi)—In a paper which I purpose to present to this section before the close of the week, I have indicated briefly what we have attempted to do along the line which Regent Emery has referred to, so I think it would be better not to forestall that paper and steal my own thunder.

I would make a comment, however, on the matter of courses of study—outlines of work for the model schools as being a growth which should come from the model school, the supervisor of practice, the heads of departments and the president of the school united,—and why such outline has not been made and worked up to in the Normal schools of Wisconsin, I am at a loss to know. I do not believe there has been a president of any Normal school in this state who has not realized that that would be a good thing. We all do know that the courses of study, so-called, as indicated in our catalogs, * * * * simply indicate in a very general way a lot of things that are to be

done, and cannot be helpful either to the model teacher, the critic teacher, the head of a department, or anybody else. I have had it in mind ever since I have been in the Normal school to make out a course and a syllabus and put it into the hands of practice teachers. But I have not done it. Just why I am not going to tell you, because I do not know myself. There has been no rule of the Board in my way, no unwillingness to assist upon the part of the faculty. We have talked about it, but we have not done it. As it was stated a little while ago, this is a week for growth, and I suspect that some of us will go back and start in to work that out.

Miss Shultes—So far as drawing, music, and gymnastics is concerned, our work has been carried out very much as was suggested by the lady from the Milwaukee Normal school. This is especially true in the drawing.

Mr. Pray—There was something said that I did not understand. It was said that the courses of study printed in the catalogs are of very little value to anybody.

Mr. Breir—For the model school. I doubt whether many of the practice teachers or model school teachers refer to them very much.

Mr. Pray—I doubt if that statement is correct with regard to one school. I think that the catalog will show that an attempt has been made to state with reasonable clearness the topics and order of presentation, and while it is not as definite as a syllabus would be, it certainly gives a fair degree of information to those who can read between the lines.

Mr. McNeill—I do not believe the teachers of professional subjects are by any means the whole thing in the Normal school. I think that very often a teacher of German or any other subject may be as much an inspiration and important factor in the Normal school as any other teacher. The important factors in the Normal school are, first, the model teachers, and, second, the supervisor of practice.

Leader, J. Q. EMERY, Albion.

(Second Day.)

TO WHAT EXTENT SHOULD THE MODEL SCHOOL BE THE CORRELATING CENTER OF THE NORMAL SCHOOL.

J. C. MCNEILL, Superior.

In the preparation of this paper I have incurred indebtedness to the N. E. A. committee and its report on Normal schools presented to the National Educational Association at its Los Angeles meeting, July, 1899. I am also under obligations to other great students of Normal school problems whom I have consulted on matters herein presented. It is my purpose to state a few fundamental facts in a terse way, with a firm conviction that the positions taken have grown out of efforts to adapt means to ends in considering the model school or training department as the correlating center of Normal school work.

As to the clientage of the training department I hold, with many others who have expressed themselves on this point, that it should always include three classes of learners who under our state laws are entitled to attend free public schools. Wisconsin makes provision for the education of infants, that is persons from four to six or seven years of age; for the education of children, that is persons between six or seven and thirteen or fourteen years of age; and for the youth, those little over thirteen or fourten years of age.

The infant, because of his plasticity and lack of development, needs, when he first enters the public schools, to be placed in the kindergarten; the child is entitled to the treatment he receives in the best conducted graded school; and the adolescent young person needs that training and direction properly suited to age and development as carried on in the best high schools.

A training department which does not provide for the treatment of the infant, the child, and the youth is, to say the least, not properly organized. No student should be graduated from any full regular course until his observation and training in teaching and managing have touched the three great epochs in early education. The study of psychology after the development plan is comparatively barren in its results unless the student submits its teachings to the real concrete problems of teaching and managing in each of the early epochs of child development. Our excellent system of Normal schools needs some attention in this respect. The Board of Regents, presidents and faculties should feel that no Normal school is properly equipped until these conditions are met.

A good training department conducted along the lines to be discussed later in this paper, with a modern kindergarten, with some purposeful work in manual training, and with opportunity for a scientific study of the problems that confront the teacher of beginning classes in high schools, will help to place or keep Normal schools where they, by the logic of their existence, belong, at the head of public educational forces, and the training department may be in fact as in theory a veritable pedagogical laboratory, a true center of correlation for the study of the problems of elementary education.

Under the plan of organization in Wisconsin the president of a Normal school has control of all of its departments. The wide interests and the involved mechanism of the institution make it necessary for him to delegate authority in various directions. The model school or training department is placed under the direct control of the supervisor of practice who must stand directly for the management, teaching and general movements of the model school; and together with critic teachers formulate the course of study as outlined by teachers in academic branches and submit it to the president for approval or modification.

Teachers of academic branches should be thoroughly informed on what infants under six or seven, children under thirteen or fourteen, and adolescent young people in the ninth grade can and ought to do in their respective lines. In other words, each teacher of a branch in a Normal school ought to be so thoroughly familiar with child psychology and with children's work that the subject-matter as to extent and content will be adapted to the faculties, capacities, and powers of the taught in all grades. They should propose in writing

the subject-matter for the course of study in the training department, and they should also submit in writing what they consider the leading points in the method of presenting the subject-matter of their various branches. Because of the liability to over-estimate the relative worth of subjects by specialists, and because many excellent teachers are partially unacquainted with other requirements necessarily made upon the infants, children, and youth in the training department, the limitations set forth in the preceding paragraph as to the final word on the course of study should be observed. Here unification and correlation begin in earnest.

The supervisor of practice should supervise the work of critic teachers and student teachers and call together critic teachers, student teachers or Normal teachers for consultation. The training department involves work in which all members of the faculty should understand and share; yet, to secure evenness in discipline and articulation in study, the responsibility for administration of the course, for method of preparation and presentation, and for general management must be centered in one person. Academic teachers should assist the supervisor of practice and critic teachers by exchanging ideas freely and by reporting in writing to the supervisor of practice criticisms, both favorable and unfavorable, upon students whom they have seen at work in their respective lines. While members of the faculty outside the training department have many other duties to perform, this work is vital in unifying the work of a Normal school and may be done with very little friction if students are always referred to critic teachers or supervisor of practice for reports, direction, or advice.

Critic teachers should teach a considerable portion of the time; criticise, accept and reject teaching plans presented by students; take the final responsibility for plans used; and do the major portion of the criticism of students working in the grades, always basing commendation or its opposite on the application of accepted laws of teaching and managing. While the supervisor of practice outlines all the work in a large way, definite responsibility rests upon critic teachers. In meetings with student teachers critics should cause them to know and feel that class management and government as well as the "what" of subject-matter and the "how" of presentation rest upon a few basic principles. Students should take part in discussions and point out themselves, if possible, the pedagogy of the situations. Practice teaching ought not to be limited to a test of ability to teach and govern; it must take the student with all his awkwardness and wrong notions and cause him to grow in a sense of the fitness of things and in skill in execution. It must make him persistent and consistent in bringing together subject-matter and right philosophy in such a way as to enlist a hearty co-operation and a sturdy attack of lessons by the children.

Critic teachers should be in frequent consultation with teachers of the academic branches and of educational science so that their positions shall harmonize in subject-matter, in theory, and in practice. Critics should be persons who because of learning, training, experience, and insight can command high salaries. It is in my estimation a defect in policy and wrong in practice to pay the lowest salaries in the school to critic teachers who must adjust themselves to all phases of Normal school work and who must carry such grave responsibilities.

A fair recognition of critics' work will do much to bring together as equals all officers in a Normal school. Without personal bias, with a wholesome personality, basing judgment of students' and pupils' work upon accepted principles, the worth of critic teachers cannot be gauged by knowledge or skill in instruction, but rather by inspiration and guidance to sensible and purposeful educational ends.

The training department is within certain restrictions a proper place to test new educational notions. In the past the great reforms in matter and method have usually started in vigorous school systems, where under the guidance of a superintendent, a principal, or a teacher with a clever insight into the natures and thought movements of children a new scheme of work has been tested. In the Normal school there should be a chance to work out what ought to be as well as to illustrate what is. Members of the faculty who think beyond their fellows should have an opportunity first to set out the nature of the new idea so that others may understand its aim, to have the matter discussed as an educational proposition, and to take charge of a class in the training department where, under observation and criticism, the worth of the notion and the method of its presentation may be fully tested. Here is a chance for genius, teaching power, and good managing to make the Normal school a real leader in scientific pedagogic exploration. If a member of the faculty will in the way just indicated, step forward, put himself into his proposition, and stand by it until its positive or negative values are established, he will add much to his worth as an officer of the state.

The training department properly organized is the correlating center of accepted doctrine and practice. Here students feel the urgent need of knowing subject-matter, what the general purpose of the subject is, what the aim of each lesson should be, what should be known or done to accomplish the aim, and how to apply with certainty and skill the method of the lesson. Here come problems in school management. The weakest teachers of the faculty, following the line of least resistance, are frequently unconsciously copied by student teachers. One of the most serious sources of failure among practice teachers is the unconscious imitation of academic instructors whose ideals are not correct and whose practices do not accord with the fundamental purposes of a Normal school. The training department teachers have problems enough of other types to overcome. The way each faculty member should work for intending teachers is to give them clear notions of what is to be accomplished, to work so that students shall feel that Normal schools exist for the establishment of a correct conception of matter, method, and management, and by daily inspiration of example confer upon them a disposition and resourcefulness to work out their conception with children.

I hold with Mr. Hall, and partly in his own words, that a training department of the right type should be the center of all professional activity for students and faculty members. It should be the laboratory for testing what should be taught and how it should be taught. The professors upon invitation and as volunteers as well as the critic teachers should teach in it; and their work should be the topic for discussion in observation and method classes. The recitation by this means would be an object of the closest study. Criticism would be based upon principles not upon hearsay. Personal opinion and per-

sonal prejudices would interfere but little with the detailed plans of each recitation. We should find that academic teachers of professional branches as well as the supervisor of practice and critic teachers would be zealous that the subject-matter as well as the methods should harmonize with the work of academic or professional classes outside of the training department or model school.

The Normal school to be worthy of confidence must be a living unit in pedagogic thinking. The principles of education must be the platform upon which all connected with the furtherance of Normal school interests must stand. Fundamental laws agreed upon must be lived up to by the entire faculty. There ought to be agreement as to the content and extent of the course of study, and its aim should rest upon the acknowledged laws of mind and body. The Normal schools would set out a system of pedagogic knowledge and methods and not isolated individual creeds. Each member of the faculty should have at all times the most perfect liberty in disapproving the notions for which the faculty stand; for it is only by criticism properly given that breadth in its best form can be reached. While one may differ from the spirit of the school and set forth that difference vigorously in the executive discussions of committees or of the faculty, yet in his work with individual students or with classes he should keep himself in strict accord with the dominating spirit of the institution, and when he cannot do so he should resign.

The model school properly correlated with all other departments should put each student in possession of a well organized body of pedagogical thought which will react upon his life and work. The application of pedagogical principles must first be conscious and awkward; but as the matter and method of subjects grow upon the student he will less consciously put into operation the principles upon which good school work is founded. The training department should stand as the place for quantitative and qualitative analyses for thought work. All engaged in Normal school work should give their personality and their philosophy to the inner life of the school so that the teaching of one will harmonize with the teaching of all others, and the management of one harmonize with the management of all others. This must not come from rule, but rather from principles which must be the guiding element all the way along.

DISCUSSION—GENERAL.

Mr. McGregor—After the admirable paper that has been read, I believe there is very little that I can say to add any light to the subject. The model schools as they exist in our Normal school system perform a two-fold function, and I shall endeavor to speak very briefly of each of these functions and show how both may serve, separately or together as correlating centers looking towards best results.

The model school is a school of exemplification first of all. It is also a supplementary school. The model school, inasmuch as it is supplied with a high type of teaching as exemplified in that school, is used as a school of observation, where it is supposed that the observer will find only those things that are to be copied or admired I imagine that the same principle exists here that we now observe in connection with what

is called false syntax, giving words that are misspelled. I do not think I have seen any recent grammars containing illustrations of false syntax. I think there is a psychological reason for the abolition of everything of that sort. We have enough of it without going to the grammars. I presume that the intention is that the work done in the model school shall be model work, the highest type of the art that can be produced. It is to the Normal school what the clinic is to the medical school. When used for such purpose, it seems to me the work should be entirely within the hands of experts, regular teachers of the highest order. And I endorse every word said by Pres. McNeill concerning the matter of salary for those who work in the model school. If it is model work, then there ought to be a model salary with it.

In making inquiries as to what brought people to the Normal school, I have almost invariably got this answer: "The young man or the young woman who taught in our district school is the person who gave the inspiration to go on further." The strongest teacher is the one who does the most of this work.

The second thing is to see good teaching. If the student is well taught in the Normal department, it will help to make him a good teacher in the model school.

The third element is to be trained to judge of the quality of teaching. Has he learned in his professional work any theory in psychology by which to judge of the quality of teaching? If so, it adds another item to the possibility, not to say probability, of his making a good teacher.

The next step is to do good teaching under judicious instruction.

In these four senses the model departments of our Normal schools are correlating centers. First, to make the teaching in all departments of the best, because that teaching is going to be reflected to a greater or less degree in the model school. Second, to enable the students to observe the highest type of teaching, because much of what they do in teaching will depend upon what they have observed. We are all imitators, usually to a great degree. It is so with young people especially, and they will imitate many things that ought not to be imitated. Third, we have the correlating center upon which judgment is to be based as to the quality of work. And fourth and last, we have the correlating center of practice. It is as it were the testing ground for the practice work of the school under the proper direction.

Mr. Cary—I have no objection to the emphasis which is placed upon the "reign of pedagogic law." I believe in it. But I do object to the statement that there is no place for personal opinion.

Mr. McNeill—That statement was not made, Mr. Cary.

Mr. Cary—In all discussions in the faculty meetings, and in discussions one with another, I think personal opinion should carry weight. I thought President McNeill thought that in the criticism of practice teachers there should be no such thing as personal opinion.

Mr. McNeill—I said that the academic teachers should leave their criticism with the supervisor of practice and not interfere with the students themselves. "Too many cooks spoil the broth."

Mr. Cary—I think I have nothing to say.

Mr. McKenny—No student should be graduated until he has touched upon all grades of the work.

The principal would have to run the whole scale from the kinderten to the ninth grade.

Question—Do you expect to put that in forty weeks' time?

Mr. McKenny—No, sir, the kindergartner should touch every grade, but not so vigorously the work that lies beyond her sphere. A kindergartner without that view has such a narrow scope that she is not a good kindergartner.

That depends upon the individual.

Mr. McNeill—My observation does not grow out of my work in the Normal school. I happened to be the supervisor of the work of five hundred teachers for a numbr of years and I observed that those doing the most successful work had touched these various lines.

Question—What portion of the time should critic teachers have charge of the class?

Mr. McNeill—They should have charge of a room or a class a sufficient length of time each day to make that school a model school, a better school than is found in the city schools, and long enough for the purpose of the model school work to be illustrated.

Question—Have you any idea of the time?

Mr. McNeill—That depends upon the pupil and the teacher.

Question—Half the time?

Mr. McNeill—No.

Question—One third?

Mr. McNeill—Possibly that. I have not figured out the matter of time. I have figured out rather the quality of the individual doing the work.

Question—I am taking now the average teacher. The question is related to a paper which is to be presented tomorrow. The question comes up in that paper: "What portion of the time ought the practice teacher to have charge of the room?"

Mr. Salisbury—I am emphatically of the opinion that what is called the critic teacher in the model school should teach the children one half the time. I cannot quite manage that in our model school. If my teachers do not teach the children half the time it is because they do not reach the ideal. I think they ought to. I think that one third of the time ought to be the minimum. The central thought of Mr. McNeill's paper is bringing the teachers of the Normal school departments upstairs and downstairs into closer relation, but especially to bring the upstairs teachers closer to the work in the model school. There are a number of difficulties that arise. He says in his paper that the supervisor should have the power or right to call together the teachers of subjects in the Normal department for conference. I do not believe that the supervisor should have any such jurisdiction. It should be reached through the general faculty meeting. There would be a benefit derived from the teacher upstairs going downstairs and teaching the children. That would be a good thing for the Normal teacher. There is no question about that. There is too much lack of continuity. The students are passed around all day long now from one teacher to another, and perhaps to the critic teacher for a little medicine, and we are sacrificing the children more or less all the time. We are offering up those children to some extent for the benefit of the Normal department, the practice teachers, and the state at large.

Mr. McNeill—I am very sure that I have failed to convey the thought in my mind, and I wish not to be misquoted or misunderstood. Mr. Salisbury did not notice the modifying clause. Members of the faculty who have ideas to exploit, should first present them to the faculty or committees, and they should be discussed *pro* and *con*.

(Quoting from paper.)

Mr. Pray—I want to second all that Mr. Salisbury has said. But I do not believe the children are sacrificed in the Normal school. I know a good many children who have gone through the model school and none of them are physical, moral or mental wrecks. That ought not to be said by a Normal school man in this company. It is said enough by other people.

Miss Vandewalker—I heartily agree with Mr. McKenny that a kindergartner cannot be good unless she knows something of other school work. A kindergartner is not worth much if she does not know pedagogy and psychology in addition to her knowledge of Froebel. I question whether, taking the attitude of President McNeill, it would be for the interest of the child. I want to call attention to the opposite of this. If the kindergartner needs the full course to make her a good kindergartner, what about the grade teachers knowing something about the kindergarten? The younger the child the greater amount of adaptation or pedagogy the teacher needs. In the expert kindergartners one must find power of adaptation to the needs of the little children they have under them, not always found in the other grades.

I think, however, that this idea may be carried too far. Are we not running too far in the direction of uniformity? In the Milwaukee school we have a kindergarten course which is differentiated from the other courses. We have an intermediate course which is differentiated. I think we should have a special grammar grade course. The one who is trying to do everything will not do anything well. My experience in the line of general practice has led me to believe that we need more specializing than we have.

Mr. Emery—In response to that I will say that a resolution of the Board passed two years ago makes special provision for this special training of grammar school teachers.

Mr. Brier—I am not disposed to take Mr. Salisbury's statement with reference to the horrible consequences of the heads of departments going down to teach in the model schools. I do not believe there are many heads of departments who could not do that work very well, and I do believe that if it could be brought about it would be an excellent thing not alone for the heads of departments but for the children. Not that we have not excellent instruction in our model school, but it stands to reason that Mr. Sims, with his knowledge of geography and the study that he is making of it day after day, should know some things about it that the general teacher does not know, and I should not hesitate at all to have Mr. Sims go and teach in our model school. We must make our model schools excellent and keep them excellent. We are in competition with good public schools where tuition is free.

I think we should keep in mind all the while that we are confronted by a condition and that condition is law. Certain things have to be

done in order to graduate people from the Normal schools of Wisconsin. A person who holds an elementary certificate in Wisconsin must have passed an examination in certain branches, etc.

We might be able to change the law.

We never can tell what a teacher is going to teach no matter what his preference, until he is done with the school and goes out to teach.

Mr. McNeill—I just want to say that in my opinion President Brier has uttered a great truth. One who does not specialize on a broad course is a poor specialist.

OBSERVATION.

(a) *Purposes of the Work in Observation.* (b) *Organization of the Work to Accomplish These Purposes.* (c) *Value of Observation After Practice Teaching.*

ALICE H. SHULTES, River Falls.

Observing some children recently who were entertaining themselves with the performance of tricks involving a mystery known only to the performer, my attention was attracted to the youngest of the group who insisted that each feat of jugglery should be repeated over and over again while he gave the closest attention to every movement of the performer. Finally he would shout in triumph, "All right, I've caught on to it. See me do it!"and almost as triumphantly my pedagogic soul exclaimed, "Bravo, my boy! you have 'caught on' to more than you know, for you have discovered the missing half of the much-condemned Comenian maxim that 'We learn to do by doing.'"

If we recall our experience in learning to do things we shall find that we usually need to be shown how before we undertake to perform the act ourselves, and the maxim should be,—We learn to do things by first seeing others do them, and then trying to do them ourselves. Thus completed the Comenian doctrine will apply to the learning of many simple arts. But when we enter upon the mastery of an art that deals with the complex affairs of life, we find that if we would learn to manage them rightly and would be able to adapt our doing to a variety of conditions and circumstances a third element must enter into our working formula and it should be,—We learn to do things rightly by first seeing someone else do them, and then making repeated efforts ourselves under the guidance of right principles and inspiring ideals. If the good old Moravian reformer will permit such a modification and completion of his maxim it will serve for the first of a series of propositions upon which my theories of observation are founded.

The teaching art is so vital in its consequences, so far reaching in its influences, so complex in its execution, so variable in its adaptation that it cannot be learned by merely seeing others teach, neither can it be learned by teaching alone, neither can it be learned by studying abstract theories and principles of teaching. A combination of the three seems necessary to complete the circle of experience that results in a mastery of the teaching art, and it is a belief in the necessity of

this trinity of means that has led not only to the establishment of Normal schools, but also to the division of the professional course of study into observation, theory, and practice.

The student who spent so many days in observing a fish in the laboratory of Louis Agassiz was a pioneer in a method of study that at present excites no comment when applied to any branch of knowledge. We commend the method of instruction that sends the student to the use of the lever to discover its laws, to the examination of the blossom to discover its structure, and we contrive apparatus whereby he may experiment with light and air and water in order to discover their properties, because it is in accordance with our educational philosophy. First, That the elementary ideas in any branch of knowledge should be taught objectively, and its general truths reached inductively. Secondly, That ideas gained by experience afford a better apperceiving basis for the gaining of new knowledge than do ideas gained from text-books.

Believing the above propositions to be as true in the study of pedagogy as in other branches I appropriate them for the further support of my theory of observation, and from them deduce the corollary, that the doctrines of pedagogy should be applied to the teaching of pedagogy.

Under the leadership of Dr. Kheil of the State University of Minnesota, a summer meeting is usually held at Minneapolis known as the Normal School Congress. It has been my privilege to attend some of these meetings, and on one occasion I listened to an address by the Supervisor of Practice in the Mankato Normal school in which she presented some of the difficulties encountered by her in the supervision of practice work. She claimed that the students come to the work of practice without a working knowledge of psychology and methods even though preparatory work had been done in both subjects. She said, "It is my belief that the model grades should be utilized for purposes of observation as well as for a school of practice. The state employs expert teachers in these departments, the frequent and systematic observation of whose work would be of inestimable value to the students in their preparation for teaching. Why might not these skilled teachers, by conducting class exercises with their pupils, demonstrate the methods and principles of teaching that are now presented from text-books? In other words, why may not the model grades be used as a pedagogical laboratory where psychology, methods, and principles of teaching may be studied objectively?" Much discussion followed. Many doubts were expressed regarding the possibility or advisability of such an innovation. I listened with interest to the *pros* and *cons* as they were presented, and at the close of the meeting found the lady and tried to encourage her by telling her that her plan had been tested for many years in the River Falls Normal school. The lady referred to was a teacher of wide experience and an educational leader whose opinion is worthy of attention. I make use of it here because it places before you the purposes of observation from a source entirely disinterested so far as any desire to affect this audience is concerned, and at the same time establishes for my own theory a background of support.

The report of the Committee on Normal schools submitted at the Los

Angeles meeting of the National Educational Association, suggests purposes and plans of observation in harmony with my own views and essentially in accordance with my own experience and practice.

Objections are sometimes raised against the concrete method of studying pedagogy and the observation of model teaching before a text-book study of the subject, on the ground that it would be like "pumping water from a dry well," but experience proves that most of the wells are by no means dry. The principle of simplification and adaptation is a divining rod as potent for the teacher in guiding him to the sources of the pupils' knowledge as is the hazel branch in guiding man to the sources of water. What we call "dry wells" are too often only closed cabinets which we are too bungling to unlock.

Since the basis of our educational philosophy is psychology, it is all important that students should be prepared for the work of observation by a short course in experimental or introspective mind study,—a course so simple that I prefer to call it a study in mental life. Here, as in pedagogy, the book should be omitted because far better results are obtained by going to the mind itself for elementary knowledge of its activities. This course should be to the study of psychology what the study of home geography is to the science of geography, or what the study of number is to the study of arithmetic, or what the study of the human body is to the study of physiology. It is a course in which, by the exercise of introspection, the learner becomes cognizant of his own mental states under conditions created for that purpose by the teacher of psychology. In fact, it is an application of the laboratory method to the study of psychology by means of which the fundamental facts of mental life are experienced and recognized as realities no less tangible than the realities of physical life, thus affording an apperceiving basis for the advanced study of psychology as well as a working basis for the understanding of methods exemplified by model teachers. Experience proves that pupils thus taught are able to recognize the mental activity put forth by the children in the lesson under observation and to see the relation of that activity to the mastery of the subject matter, and also to determine the teaching process that will secure the desired mental activity.

Simplifying and recapitulating the previously introduced propositions they afford the logical premises from which may be deduced the purposes of observation. These foundation propositions are—

1. To be shown how to perform an action is more effective than to be told how to do it.

2. Repeated acts of showing disclose method.

3. From repeated acts of showing in an art based on principles the principles may be deduced.

4. The witnessing of skillful operation leads to the forming of right ideals.

5. Guiding principles and right ideals should direct and inspire all practice.

6. Ideas gained by experience afford a better apperceiving mass for the gaining of new knowledge than do ideas gained from text-books.

7. The doctrines of pedagogy should be applied in the teaching of pedagogy.

(a) Regarding observation, therefore, as a concrete method of study-

ing pedagogy and applying the foregoing propositions to that method of study, the following purposes unfold:—1. Methods of teaching special branches. 2. The making out of lesson plans. 3. The learning of principles of teaching. 4. The establishing of teaching ideals. 5. The inculcating of a teaching spirit.

That there should be more of showing Normal students and less of telling how, is a conclusion that must have come to every supervisor of practice who has grown soul-sick over the blundering efforts of inapt practice teachers. And the desire sometimes to take the practice class and then and there show the inexperienced learner how to do it, is a forcible argument for the natural way of teaching people how to do things.

But "prevention is better than cure" in practice teaching as well as in other things, and the time to have been shown was before the blunder was made.

It is argued that if the learner sees too frequently he will become an imitator; but I have not found it so. If the practice teacher is possessed of originality and native teaching power, these qualities are bound to assert themselves. If he is without these requisites, he is bound to become a blunderer or an imitator, and he would far better imitate good teaching than to build up a faulty teaching habit of his own. We do not fear to set before the students of art models of the masters lest they become imitators, indeed, we encourage them to saturate themselves with the style of the masters that the development of their own style may be improved. There come to us so many mistaken aspirants for pedagogical honors, so many whose natural aptitudes adapt them to a sphere of life sundered far from the schoolroom, that to transform them into teachers is scarcely less difficult than to change the leopard's spots.

The imitative faculty of human nature is a noble one and when exercised under the influence and control of guiding principles is a vital and trustworthy factor in growth and improvement. But any study of the art of teaching that leaves out of the pupil's preparation the establishment in his convictions of the underlying principles of teaching, leaves him to grow into a blind plodder or an easy prey to every fad that the ingenuity of the pedagog can devise. But with ideals for his sails and principles for his rudder he may be set afloat on the sea of practice with reasonable assurance of success, and when the ballast of experience is added to his craft he may venture alone on the wider sea of actual teaching.

(b) Organization. The organization that renders the above purposes realizable consists of a class of first year students who, after a course of experimental psychology, pursue the work of observation with the same regularity and definiteness that they pursue any other branch of study. This class should witness the teaching of lessons by the model teachers to the pupils of their own grades. The observation of each lesson should be followed by an oral discussion of the lesson under the guidance of the teacher of observation who, by questions, directs the thought of the class to such features of the lesson as will lead to profitable conclusions.

In the beginning of the work pupils should be required to state *what*

was done by the teacher and class. Soon the observers should be required to consider *why* the various steps of the lesson were taken. The repeated consideration of what the teacher did leads to a discovery of method and to a discrimination between method and device. The repeated consideration under many illustrations of *why* the steps were taken, leads to a discovery of principles of teaching and to a discrimination between method and principle.

The repeated discovery that certain steps of the lesson were for the bringing up of old knowledge which enabled the learner to grasp the new, and that at other steps of the lesson new knowledge was presented, and that other steps of the lesson were for purposes of drill, leads to a generalization in regard to the three essential steps in any teaching exercise, viz.: Preparation, Presentation, Drill, and subsequently to the importance of Aim, and of determining what must be known, what is known and what remains to be taught in preparing a lesson plan.

After a proper observation of the work of different teachers in different grades, in which these separate points are brought out, pupils are prepared to give complete analyses of lessons, stating aim, steps, reasons for the steps, and the mental activity of the child called forth by the method of the lesson.

Later they are prepared to generalize in regard to methods of teaching a subject, methods of controlling a class, methods of creating interest and holding attention. If their generalizations are correct they are confirmed, or if wrong, are corrected by the teacher of observation. Finally, and by no means of less importance, are the ideals that are created and the teaching spirit that is engendered by the continued observation of good teaching, the analysis of which leads to an understanding and appreciation of skill and an ambition to reach a similar degree of excellence in teaching.

The student who does not respond to the influence of a live teacher and live children engaged in a spirited and skillful teaching exercise, would not be easily stirred by the consideration of abstract pedagogical questions. Such an experience is frequently so vitalizing that enthusiastic observation pupils exclaim, "I wish I could begin practice. I want to see if I can do it, too."

To teach pedagogy between the walls of a recitation room by the use of a text-book alone while the work of teaching is in full tide in the model grades, is like going through the Yellowstone Park or up the Rhine River absorbed in the study of a guide-book.

(c) A period of supplementary observation after practice work would doubtless be very profitable to students. The effort to teach usually creates in practice teachers a desire to know more definitely *how* to proceed, and I find them embracing every opportunity for observing the work of the model teachers. To determine the comparative value of the "before" and "after," is a difficult thing to do.

All the benefits of observation before practice would be continued and strengthened with the increased advantage that experience gives in understanding and appreciating conditions and methods of handling them.

The study of educational values, general method, school organization

and paidology might be profitably pursued thus objectively. I should not approve, however, of shortening the initial work for this purpose.

Experience is the soul's contact with actual conditions either as controller, participator, or spectator, and it is experience that teaches the real lessons of teaching as well as of life, and the more the Normal school can do to bring its students into actual teaching conditions either as spectator, participator, or controller, the more effective is its work of preparation for teaching.

A physician of my acquaintance has recently returned from Germany where he has been continuing his medical studies. He says that it was many months before he was permitted to perform a surgical operation, his masters deeming it privilege and profit enough for him to spend his time in observing how it should be done. Not until his mind was saturated with ideas gained from observing others, could it be trusted to direct his hand in the performing of an operation himself. If the dangers of malpractice upon the body are to be so strenuously guarded against, what shall be done to prevent the more serious evil of malpractice upon the mind, the effects of which may not be so immediately apparent but are none the less serious.

The misunderstood child, the incorrigible child, and the discouraged child are the sacrifices we offer to the Moloch of unfitness in teaching. And I believe that we can do more than we are doing to prevent the mental, moral, and sometimes physical deformity produced by malpractice in teaching by keeping before the students in training such inspiring models of good teaching that under the stimulus of ambition and ideals, they are constrained to grow into the likeness thereof.

DISCUSSION.

A. J. HUTTON, Whitewater.

OBSERVATION.

a. What are the purposes of work in observation?

1. To give students insight into educational theory, as, for example, in observing illustrative recitations conducted by the teacher of methods, or by any Normal school teacher who may choose to enforce his educational doctrines in that way.

2. To give students insight into educational theory exhibiting itself in practice, as in observing the actual daily work of teachers of the training school.

3. To place the student in the professional attitude, so that, even in his pursuit of academic knowledge, he shall learn to reflect upon the teaching, training, and testing power of the teacher to whom he recites,—to learn the secret of the teacher who has power over *him*, and to discover the sources of weakness in the teacher who fails to influence him strongly.

Of these three forms of observation, the second is the one that should be organized into a formal course, and, consequently, it is the one that comes specially into the field of the present inquiry. It should come before practice. It would be very desirable, too, if it could come for a shorter term after practice.

b. How should the work be organized to accomplish these purposes? As a rule, the more simple the organization the more efficient it is.

PREPARATION OF OBSERVERS.

It is obviously preposterous to set students to the task of observing without giving them very definite and specific directions as to what they are to observe. There should be *preparation* for observation. In our schools that preparation should be made upon the basis of the "Manual."

1. The student should be made familiar with the organization of a typical Wisconsin country school into its three grades or forms.

2. In the four fundamental branches, at least,—reading, language, arithmetic, and geography,—they should learn pretty thoroughly the purpose of the work, the course of study, and the tests for promotion in each form.

3. They should read over with the director of observation the suggestions to teachers in each form.

4. They should be required to study what the "Manual" says about study and recitation programs, the keeping of records, and the classification of pupils under the course of study—in short, the fundamentals of school teaching.

DIRECTIONS TO OBSERVERS.

With these doctrines of the "Manual" in mind, as a standard of criticism, they should be directed to discover by observation of the recitation:

1. The teacher's purpose.
2. The steps taken by the teacher to attain that purpose.
3. What principles and devices were used.
4. What measure of success was attained.
5. How the teacher secured interest and attention, or why she failed to do so.
6. How, and to what extent, the teacher in each recitation utilized the knowledge and power secured in previous recitations.
7. What instruction the teacher gave beyond the range of the matter of the text-book.
8. If the teacher was careful and definite in assigning the next lesson.
9. What testing and drilling exercises the teacher had and with what success.
10. If the pupils were orderly in their movements.
11. If they stood firmly on both feet while reciting.
12. If they recited well,—that is, with fullness and certainty of knowledge, in full sentences, in pleasant tones of voice and with evident pleasure in the performance.
13. If they asked sensible questions.
14. If they seemed natural, interested, and happy.
15. How all the good results observed were secured, and the probable sources of failure if they were not secured.

DESIRABLE CONDITIONS.

1. The class of observers should not be too large,—a class of from fifteen to twenty is about the right size.

2. They should observe together, at first successive recitations of the same class for a series of days,—from three to five.

3. The director of observation should observe with them.

4. They should take accurate notes of all they observe.

5. Under charge of the director there should be conferences and full comparison of notes.

6. The teachers conducting the recitations should attend the conferences whenever practicable.

7. The notes should then be written up in the form of full reports to be read and marked by the director.

8. The recitations observed should be in charge of expert teachers.

c. Value of observation after a period of practical teaching compared with its value before any experience in teaching.

Observation after practice and formal instruction in psychology, theory and methods, is much more fruitful in results. With fuller knowledge of principles and a better appreciation of the purposes of education, the students are able to get more out of observation, as out of everything else. Time, however, is limited. Then, other teachers besides the director of observation are making demands upon their time and attention. There is no great gain in robbing Peter to pay Paul. Besides, by this time, the students should have formed the professonal habit. They should have larger power of self-direction and less need for guidance.

With certain classes of students,—those for example showing greater teaching than managing power,—five weeks—not more—of observation might be substituted for five weeks of practice.

This observation work would have to be organized on a different plan. The student observing should spend as much time as practicable in some well-managed department, in order to observe in detail the teacher's organization and management of her school; the nature of the motives by which she secures study and good order; the point at which she comes into personal contact with the pupils, individually, so as to affect them beneficially; how she manages the seating, the movements, the recitation hours, the social hours, and in short the whole life of the school, so as to make them all contribute to the formation of those good habits which lie at the foundation of good character.

The first course of observation should concern itself with the recitation principally; the second course,—if room is found for it without curtailing the first course,—should concern itself with these other matters principally.

DISCUSSION—GENERAL.

Mr. McKenny—I will ask Mr. Hutton how many weeks of observation he thinks necessary. I think I caught the number as five.

Mr. Hutton—I said that five weeks was the number that might be spared if we had observation for practice. I would like to have ten including time for preparation. I would like to have more.

Mr. McKenny—You would advise more than ten weeks?

Mr. Hutton—Including time spent in preparation for the observation.

Mr. McKenny—How much would that take?

Mr. Hutton—That would have to be modified of course by the amount of work in observation. I think we can do in four weeks what I have indicated along that line so that the student would have a pretty good idea of the purposes of the work.

Miss Shultes—We have a period of twenty weeks for observation. About five are ocupied in the teaching of psychology, leaving fifteen weeks for the real work of observation.

Mr. McKenny—How large are the observation classes?

Miss Shultes—The present observation class numbers 76.

Mr. McKenny—How large are the groups?

Miss Shultes—Seventy-six. We go into the room and sit or stand while the teacher of the grade goes on with the regular lesson,—not a show lesson. Then we retire to my room, which is half as large as this, and there the lesson is discussed. The next day, if we have not completed it, we continue the discussion of the lesson.

Question. What particular branches do you observe? Do you confine yourselves to the four?

Miss Shultes—Yes. In the course of reading we try to get something of spelling. We take up the subject of numbers, and if we have time we observe geography and language and try to spend a little time in the kindergarten.

Question. Will high school graduates go through this same course?

Miss Shultes—Yes.

Mr. Hutton—We have a class every quarter. The classes are smaller.

TO WHAT EXTENT SHALL NORMAL STUDENTS TEACH IN THEIR OWN CLASSES?

J. W. Livingston, Stevens Point.

Through the medium of Wilhelm Meister Goethe declares: "There is nothing more frightful than a teacher who knows only what his pupils are intended to know. He who means to teach others may indeed suppress the best of what he knows, but he himself must not be half instructed."

Mastery of subject-matter must precede the power of presentation to others. Back of all method—whether of the "what" or the "how"—must lie a full comprehension of the things to be taught. It is futile to graft even the finest scion of pedagogics unless the stock whereon we graft be sturdy and firmly rooted in life-giving knowledge. The products of the Normal schools must resemble worthless apple-trees whose scanty blossoms fade without fruitage if we, like apple-tree peddlers, graft our scions upon weak and poorly rooted stock. Normal teachers cannot too often reiterate the thought that sound scholarship must always be the basis of strong pedagogy. It is not enough for our students to conquer the different divisions of a subject. They must regard these divisions in their logical relations in order to contemplate them later in their psychological aspects. A natural corollary of this claim demands in the Normal classroom not tyros but master teachers. The fact that there is so short a time allotted to each subject in our curriculum makes it all the more necessary to do strong teaching in the Normal classroom.

The moral world has long recognized that example is more potent than precept,—that the influence of a noble life transcends that of dogma or creed. In like manner from the imitative tendency of students, the methods carried on in the classroom wield a far more powerful influence than do the doctrines of teaching there promulgated. Since man is essentially an imitative animal, the very best teaching should be the rule in the Normal classrooms. Unless the teacher is better able to instruct than is any member of the class, positions should be reversed and the salary go to the one most capable of earning it.

A class left wholly or even largely to do its own planning and provide its own teaching must of necessity suffer much waste of time and effort. A ship without mate or captain is sure to drift from the course of navigation and eventually be driven into danger and disaster. The teacher who abdicates his position in favor of the student body robs the class of the talent, experience, and wisdom for which his salary is paid. To call upon pupils to perform what is rightfully the teacher's function deserves the name of shirking. He may urge that his students are learning from the best teacher in the world—experience. He may urge very eloquently that these young people are following in the footsteps of humanity and learning at first hand the lessons learned by the race through the experience of successive generations. Were we still in the days of Methuselah there would then be present one element essential to the success of this slow method. From the centuries there has been evolved in every line of effort some crystallized common sense that renders possible further progress.

To place tyros in the kitchen with the expectation of evolving purely by experiment a class of skillful cooks would involve waste of costly material, wicked waste of time and effort, and a vicious repudiation of our birthright, the privilege of applying the wealth of wisdom gathered by our ancestors at so large cost and handed down with so great care. Even more absurd would be the attempt to develop from the novice by a like process the skilled physician and expert surgeon. There is high honor in the title, teacher of teachers. We who proudly bear this title hold it as duty and privilege to bring to our laboratory the best products of experience, the most trustworthy knowledge, the truest principles of action, the most apt presentation of subject, and the most dextrous and delicate handling of the instruments that probe not the body but the soul.

Exercises in the Normal classroom should be regarded as a sort of clinic. Attention must be constantly turned to the teaching process, and there should be the fullest and frankest questioning as to what is the teacher's aim in the recitation and why he takes each step in the process of attaining his purpose. Is there a better way to attain this specific end? should be the watchword of both student and teacher.

Neither must we forget the trite maxim, "We learn to do by doing." The wise surgeon training a son to become his co-worker and successor, first carefully teaches by description, diagram, and illustrations how a given operation is performed. Later the prospective surgeon assists in the minor details of that operation, administering the anaesthetics or stitching up the wound. When convinced that it may be

done with reasonable safety to the patient and without too great shock to either operator or onlookers, the expert allows the prospective surgeon to wield the instruments that mean either life or death.

Frequently when a Normal student fails to perform his work in the recitation, volunteers may be called for to diagnose the case and then prescribe and apply a suitable remedy. Many a valuable pedagogic lesson is thus taught in an objective way, frequently by contrasting the false diagnosis with the true, and the tactful, skillful treatment with the other kind. Naturally enough it is sometimes necessary to take precautions against that deadly microbe, the bacillus of destructive criticism. In modern pedagogy as in modern surgery, the deepest probing is rendered comparatively painless and dangerous after effects are entirely obviated by removing their primal cause.

Recently in a professional review reading class a student's attempts to read Hamlet's soliloquy showed that mastery of the thought was not to be secured that day without help. A volunteer came forward to relieve the difficulty only to reveal his own ignorance and consequent inability to help. Another volunteer wasted his ammunition by not knowing whereat to aim. Then came a quiet, self-possessed young woman, whose single question, like a well-sent rifle ball, struck the stragetic point of attack. "What is the subject, and what the object of *takes*?" This skillful bit of teaching with its background of failure proved a far more effective object lesson than any the teacher of teachers could manufacture for the occasion.

The power to question with judgment and skill may be cultivated by appointing pupils to conduct a five-minute quiz on what has been covered in previous recitations. In school management we devote the first two weeks of the quarter to important points in school law. For several weeks thereafter each day a student conducts a quiz on some given sections of school law. Helpful criticisms are then called for on the preparation, the nature of the questions, the manner, voice and bearing of the student teacher.

The professional reviews are probably the classes in which teaching by students may be most profitably done. These classes are necessarily uneven, and so are sure to include students in need of definite instruction which other members of the class are fully competent to give. Certain pupils are assigned to prepare definite lesson plans and carry them out before the class.

To illustrate: Four students in the review reading class were recently assigned work of this kind. The matter selected was the last two stanzas of Longfellow's Launching of the Ship, the peroration in Wendell Phillip's speech at the grave of John Brown, the paragraphs in Webster's Bunker Hill Oration that refer especially to the veterans, and Hamlet's address to the players. A time limit of twenty minutes was set for each teacher and the class held responsible for preparation of the lesson definitely assigned. The results were close preparation by the practice teacher, wise use of pictures and other means of increasing the interest, courteous and earnest response on the part of the class, full and free criticism of the good points of the presentation and suggestions for improvement. The most pleasing point was the insistence with which students demanded that criticisms should be specific and of such a nature as to help the reader to cure the defects pointed out. The various criticisms of the teaching done

brought out many helpful hints for improvement and some of them were suggestive to the regular teacher of the class. Naturally it is necessary to limit these exercises to those whose knowledge, maturity, and skill best fit them to prove helpful to the other members of the class.

RECAPITULATION.

First—The regular teacher's broader knowledge and stronger grasp of subject best fit him to be instructor of the class.

Second—The experienced teacher can best present teaching exercises calculated to create right ideals in the minds of the prospective teachers.

Third—The teacher who largely turns over this work to the student body is robbing the class of the power and wisdom supposed to be paid for and is likely to produce in his classes a waste of time and effort unwarranted by results and productive of chaotic conditions.

Fourth—The Normal classes should be regarded as a sort of clinic to create ideals and prepare for successful practice.

Fifth—Frequent opportunities arise in the regular class work that allow profitable observation lessons on the part of the class upon a teacher from their own number.

Sixth—It is wise to provide for more formal practice work by students in the class, when it is properly limited in time and is restricted to those students whose work does not mean large waste of time for the other students.

Seventh—The nature of the professional review work, the conditions found in these classes, and the maturity and experience of some students taking this work especially fit these classes for such practice teaching.

DISCUSSION—GENERAL.

Mr. Emery—Discussion may follow either upon this or the preceding paper.

Mr. Brier—I was glad to hear Mr. Hutton emphasize the importance of having observation of actual classes. I do not know that anything more needs to be said upon that. There is an impression abroad that show classes are gotten up in some of the Normal schools for the purpose of having them observed. I like the idea very much of taking the regular class work as it comes and present that to the observation class and let them see the actual work of the teacher day by day. The pupils themselves who are under observation seem to be wholly unconscious of the presence of a large class observing the work. There is no effort made in our school to make an exhibition of it, except that it is a feature to be observed.

Mr. Jegi—In connection with observation, I think in the main we may agree somewhat. But I believe in fixing things up for observation. I certainly believe also in the everyday class work. Suppose you have four days of observation in the fourth grade for a given sub-

ject. Is it likely that during those four days the teacher will use in these exercises her different methods of teaching reading, for instance? Is she going to get at the various means that she employs? If it so happens that her work cannot be planned to show what stands for her method of teaching, I want her to fix up something that will stand for it. If the teacher has some skillful method of review work which we could not see during the four days, I would like to have her give that for the benefit of the class. I do not believe we are sacrificing the child. I think we are certainly helping the students when we give them an opportunity of observing the whole round of the teacher's work in that subject. I would emphasize very much more, it seems to me, the later work in observation. Our school is organized somewhat differently. But it is my conviction, based upon contact with hundreds of students in the past years, that their observation in the senior year in connection with their practice, is more valuable in their teaching than the so-called observations.

Mr. Hutton—How many weeks?

Mr. Jegi—Ten weeks—chiefly for the reason that in the senior year when they have begun to work, they know what they are observing more clearly.

Mr. Hutton—I would like to have you tell us about the scope of your work. What other things beside the recitation are observed?

Mr. Jegi—We observe about everything that you have enumerated in your paper. You put in some things we do not observe. We do not observe whether the students stand on both heels or not.

Mr. Salisbury—In any class for oral instruction in the branches we should consider seventy-six an unreasonable number. We would say that no teacher could well instruct such a class. I wonder if the same thing does not hold with observation. Is it not unreasonable to precipitate a multitude of seventy-six adults in upon a class of children? Is it a feasible thing? Why not section that class?

Mr. Emery—If the results that have been named in the paper were secured, then you would not condemn it.

Mr. Salisbury—I would if better results could be secured by a better plan. It is a relative matter and nobody can say that the results have actually been secured.

Mr. Livingston—In regard to fixing up the exercise, I would much prefer that the teacher would not say anything to the class at all of our coming down. I notice that when that is not done the pupils are more natural. Whenever a teacher does prepare her class for a show exercise it is a failure.

Miss Shultes—In reference to the matter of sectioning a class: It becomes a very great burden to my teachers and it takes my time. Our teaching force is not large enough, and in order to supervise all the practice that is going on, I cannot give more than an hour a day. We did try dividing the class for a while, but taking all things into consideration, it seemed best to arrange for the greatest number. I agree thoroughly that seventy cannot be handled as well and as successfully as thirty. But with a limited teaching force that is very difficult to arrange.

HOW TO SECURE UNITY OF IDEALS AND PURPOSES IN PROFESSIONAL TEACHING AND TRAINING: (A) IN ANY ONE NORMAL SCHOOL. (B) IN THE SYSTEM OF NORMAL SCHOOLS.

ALBERT SALISBURY, Whitewater.

1. The first essential towards unity in the professional work of a Normal school is that the executive head of the school shall have some well-defined professional ideals and purposes. He must be the professional head of the school, also, and must not be capable of contentment in the midst of an unco-ordinated *melange* of professional aims and no-aims, of new-born fancies and ancient traditions, on the part of his associate workers. Let us assume, then, that the head of the school has the capacity and equipment for professional leadership.

2. His first effort toward unity in the work of his school will be exerted in the direction of a careful selection of teachers, seeking those who are from the start, by previous training and experience, in sympathy with the Normal school aims and ideals. This work of selection is as important as it is difficult. It is indispensable to the full success of any Normal school that all the members of its corps of instruction shall be professionally intelligent, professionally enthusiastic, and professionally judicious and conscientious. High culture is of great consequence, but it cannot be allowed to displace pedagogical intelligence and purpose. On the other hand, the pedagogical "crank" and one-idea man must also be sedulously excluded.

The strong modern movement towards specialization has added to the dicffiulties of tne Normal school administrator in the organization of faculties. Our demand for specialists in scholastic lines has got us into more or less trouble. The pure-bred university man is a danger to the professional work of the Normal school at the outset. It takes him too long, in most cases, to get the professional standpoint and realize that anything but erudition has value. Moreover, he lacks the sense of proportion, magnifies his specialty unduly, and is apt to take on the tone of infallibility in his estimate of the subjects he knows least about. But even the scientific specialist is less dangerous than some shallow would-be specialists in pedagogy who infest the labor market, burdened with a greater freight of "philosophy" than of experience and common sense.

To steer successfully between Scylla and Charybdis in the selection of teachers for a Normal school taxes most severely the skill and judgment of the one on whom this responsibility rests. And because of the great liability to mistake, even with the utmost caution, there is need, also, of courage for the sifting out, after they have been tested, of those teachers who do not "fit in," who lack true professional standards, or who conduce to incongruity and disorganization rather than unity in the work of the school. The easy amiability which tolerates such inaptness after it has been revealed is no less than a sin against the school and its constituency. Perhaps, however, the greatest embarrassment results in the case of teachers who range themselves on the border line, who are not clear failures professionally, who have some

good points as instructors, but who do nothing for the professional tone and power of the school.

3. After a judicious selection of teachers, the next step towards unity in the professional work will be found in the proper organization and articulation of the work in the course of study. In our Wisconsin Normal schools, the course of study, as adopted by the Board of Regents, prescribes only minima and maxima as to amount. It says nothing as to the order of subjects, an important consideration, or their distribution to teachers. It does not say whether psychology, for instance, shall be taught by a man or woman, by the President or by a young professor fresh from the artificial atmosphere of a university. All is left to the executive of the school; and much depends upon his comprehension of the problem and his wisdom in solving it.

A proper, that is, a logical co-ordination of the several parts of the professional course including the natural sequence of topics, is a prime condition both of unity in the work and of fruitfulness in its results. And scarcely less important is the assignment of the several parts of the professional course to teachers of experience and weight who will make this work solid, critical, and, at the same time, attractive; but the possibility of this depends on that wise original selection of teachers which has already been touched upon.

4. We now come to the common details of administration. And here the first agency which promises useful results is the faculty meeting. Let me premise at the outset, that this is a regular stated meeting of the whole corps of instruction at frequent intervals, preferably once each week. If faculty meetings are sporadic in recurrence and devoted chiefly to matters of discipline or the business of administration, they may still serve a very useful purpose; but they will accomplish nothing, of course, for the professional unities of the schools. And that is a loss which cannot well be afforded.

The stated faculty meeting wisely conducted,—and I sorrowfully concede that there is wide room for unwisdom here,—affords an opportunity for interchange of ideas, an occasion for the head of the school to set forth his aims and unfold his policy, a means for him to both teach and learn, which is simply invaluable. I do not forget the dangers here. Members of a faculty, and all the more so if successful and experienced teachers, come together somewhat "set" in their own ways and confident of the validity of their own notions and practices; and there is the liability of their going out as they came in. The work of the faculty meeting cannot safely be controversial to any great extent; yet, it is also true that an honestly expressed conflict of opinion seldom leaves either party to the debate just where he began. Each will, almost inevitably, think over afterwards the positions and arguments of his adversary, will find some unwelcome force in them, and will quietly, even unconsciously, shift his own ground and modify his beliefs.

Sometimes the faculty meeting will find greatest profit in the joint study of some book or review article, like Tompkin's "Philosophy of Teaching," or Dr. Harris's article on "The Future of the Normal Schools;" but the best results will not be secured by the study of works in general philosophy or literature. Such study belongs to the club

or reading circle and not to the faculty meeting, which should never get too far away from its own immediate problems.

It is important that the faculty meeting should be a well-disciplined body—self-disciplined. It must not be tumultuous and desultory in its procedure. At the same time there should be the utmost frankness of expression. Members of the body must not be thin-skinned. But there must also be the spirit of toleration and of co-operation. In looking up a new teacher, one of the first questions I ask is, "Has he, or she, the co-operative spirit?"

5. It is doubtless a common belief that the great instrument of unification in work is direct supervision, personal visiting and inspection of work by the executive head. It will doubtless be thought strange if I confess here to a certain degree of skepticism as to the supreme value of class visitation in a Normal school. As I have already discussed this subject at greater length in another section of this institute, I will not enter deeply upon it here.

Aside from the limitations of the time and strength of the executive, with the multitude of important duties which he cannot delegate to others, there are also the limitations of the situation. Even Normal school teachers are liable to be easily disconcerted, and their pupils are still more so. The head of the school is held in so much awe, for want of a better term, under these particular circumstances, that he seldom sees a fair sample of the work. And, even at the best, he gets little idea from visitation of classes of the sequence, continuity, and articulation of the work of the teacher.

Again, the question of what to do with what he does see is always a difficult one. There is a sacred tradition that he must not criticise or interfere with work on the spot; while criticism in cold blood, afterwards, seems often too serious and formidable. If the supervising head keeps silence, that is likely to be construed as a sullen disapproval; he is expected rather to praise than to criticise. But the giving of "taffy" seems to him, usually, as "stale, flat, and unprofitable."

On the other hand, supervision is, after all, needful in order to adequately know what teachers are teaching, what heresies, misconceptions, or shallow conceptions are being promulgated. It must, at least, supplement all the other avenues of knowledge open to the chief on these points. And it often, very often, gives clues to discoveries which are completed by other means. The presiding officer must school himself to discharge this duty as faithfully and as graciously as possible; and teachers and pupils must learn to take his visits as part of the business and not flinch from the useful ordeal, welcoming every suggestion as a means to greater unity and so to greater efficiency in the common work.

It would doubtless be possible to do something towards unification of work by written methods, that is by requiring members of the faculty to hand in written outlines of their work, lesson plans even, these outlines to be read and, if need be, criticised by the president. This procedure, however, would be rather a delicate matter, as it would almost seem to place the teacher on the plane of the practice teacher. Moreover, it would involve a good deal of what approaches drudgery, when added to the regular work, both to the members of the faculty and to the president.

6. Assuming now what is almost always true, that all the members of the instructional force are honestly desirous of doing the best thing for the common interest, I make bold to magnify as a means of the highest value towards unification of the work the visiting by teachers of each other's classes. Too often they are to be found working away, each in his own cell, wholly unaware of what anybody else is doing or of what inconsistency or inharmony there may be between their aims and practices and those of their colleagues.

And here, again, appear the dangers of too much specialization. If teachers are not narrow specialists to begin with, they strongly tend to become such. They "rust down" in their own classrooms, not to say "chairs," and concern themselves exclusively with the segment of human knowledge to which they are devoted. In vain the teachers of different subjects appeal to each other to "correlate." What each really wishes is to subordinate the other. In vain the teacher of English appeals to the rest of the staff to re-inforce his work, and "teach English in every recitation." They are each and all too eager to push their own specialties to the limit. They "haven't any time to teach English." They have learned more and more about their several subjects with each passing year; and they are uneasy at not being able to teach everything they now know. I have sometimes declared, though of course in a qualified sense, that I would like to change all the teachers in a faculty about every four or five years and make them swap specialties so that they could be kept freshly in mind of the rights and claims of all the branches in the course. But I suppose this would be fighting against the law of gravitation.

Probably the same end could be accomplished to a sufficient degree by requiring that every teacher should spend a portion of his or her time, say forty minutes each school day, in visiting the work of other teachers under the advice of the head of the school. I believe that such a requirement, and it would have to be a requirement, would be productive of great good in all our Normal schools. Of course this visiting would need to be directed and systematized to some degree, lest it should become aimless and desultory.

But the great difficulty or obstacle is found in the fact that our teachers are already loaded to the water's edge with duties. Their desks are usually full of work waiting to be done; and when a spare hour offers, if ever, the temptation is too great to attack that waiting task. To provide time in which this visitation-work could justly be required would involve an increased teaching force to relieve the present strain on teachers; and that would mean, of course, an increased outlay. But I believe that such an outlay, if the money could be found, would be amply justified by the results. I believe that such relief of our teachers, for such a purpose, is more important to our Normal school work today than the construction of new buildings or the provision of new apparatus.

7. Seventhly, the teachers of the Normal school should, by some means, be enabled and then required to make frequent visits of observation to the model school, both to the classes taught by the department teachers and to the practice classes. This would naturally include frequent conference with the supervisor of practice teaching, to the end of understanding her aims and plans. The teacher of arith-

metic or geography should know what the supervisor is teaching; and the supervisor should know what the rest of the faculty are teaching in the subjects which enter into the course of the model school. The results of this observation of the work in the model school should be brought into the weekly faculty meeting, after conference with the president of the school, and should there be frankly and considerately discussed for purposes of mutual information and suggestion. But this topic of the model school as a co-ordinating center of the Normal school has already been discussed in this section.

To summarize, briefly, these are the important conditions and means for the unification of ideals and purposes in professional teaching and training, viz.:—Well-defined ideals and aims on the part of the executive head, a careful selection and sifting of associate teachers to the end of homogeneous activity, the proper organization and articulation of the work through the course of study, a constant use of the faculty meeting as a professional clearing-house, direct supervision of class-teaching by the executive head, the systematic visiting by teachers of each other's classes, and of the work throughout the model school, for which purpose time should be allowed in the teacher's daily program.

If I were to add anything to this list, it would be the morning exercises of the school. It is largely in the morning exercises that the school as a whole is knit together and its spirit formed. There the ideals of character and of life which permeate the administration of the school are most effectively unfolded; and it is at least possible to set forth there those aims and ideals which we wish our pupils to imbibe as the vital spirit and purpose of all education. In short, the professional conception of teaching as a mission may there be more or less infused into the student body and teaching body alike. The desk at morning exercises, if rightly filled, is an educational pulpit; and no preacher in the land has such an audience. But its effect in the direction of unifying the professional work of the school is, doubtless, only supplementary to that of the other instrumentalities already discussed.

8. I have little time left for the consideration of the second branch of my subject,—The unification of aims in the Normal school system of the state. There would certainly seem to be need of such unification. The outside observer of present conditions in our organization of professional work might well be reminded of Pope's famous couplet,

> "'Tis with our judgments as with our watches; none
> Go just alike, yet each believes his own."

It is doubtless the perception of this by those who have us in charge that has occasioned this gathering of the Normal school forces.

The most efficient means for securing a better and more uniform organization and administration, better first, else there would be no gain in uniformity, would seem to consist in closer and more critical supervision of the schools by the Board of Regents. But it is not to be expected that hurried lawyers and business men should be able to give this expert professional supervision. The solution of the difficulty would seem, then, to lie in placing on the Board a larger proportion of educators, men of professional experience and training.

Already we are reaping the advantage of having two ex-presidents of Normal schools on the Board.

The experiment in which we are this week engaged gives promise of good results, but how good the future alone can determine. If we all go home to nourish the ideas and suggestions received here and to utilize the stimulus afforded by our present contact, much will be accomplished in the desired direction. We shall unify. But if we largely go back to our places confirmed in all our former notions and ways, our last condition may be worse than the first. From such a waste of opportunity may the good Lord deliver us.

DISCUSSION.

W. J. BRIER, River Falls.

All teaching and training in a Normal school is, or should be, professional. This is axiomatic and intrinsic. It is the very nature of a Normal school. Therefore, to secure unity of ideals and purposes in professional teaching and training we must secure unity of ideals and purposes in all Normal school work. How can we do this?

Theoretically, it does not seem very difficult. Practically, it is all but impossible, though we may approach nearer than we now are to a perfect unity.

But why have we not a complete unity of ideals and purposes? The primary answer lies in the nature of mind. Minds, like bodies, resemble one another only in general characteristics. Each mind is the resultant of millions of forces and influences which have acted upon it to make it what it is. Among the eight score of teachers in our Normals no two minds have the same percepts, the same concepts, the same memory, imagination or reason. They do not have the same degree of understanding when the simplest things are mentioned, as mountain, cathedral, London, Black Forest. They do not view from the same point the teaching of the common branches, arithmetic, grammar, geography, nor do they harmonize well as to the best way or the time required to teach the simplest topics, as, writing decimals, analysis of simple sentences, or county geography. The reason for this disagreement is not hard to find. It is the result of both inborn and acquired differences. We are all born different and we all have additional differences thrust upon us. Two teachers may have sat in the same classes through the model grades, the Normal grades and the university, yet they have been differently taught. One chance sentence may have kindled an unquenchable flame of ambition in the one and been unheard or unheeded by the other. But the teachers in the Wisconsin Normal schools represent all forms and phases of instruction. Some have passed through city grades and high schools to and through the university. Others have passed through the same secondary schools to denominational colleges or Normals. Others have been through the model schools before entering the Normal, while still others have attended only rural schools before entering the Normal. Some have supplemented courses at Harvard or Cornell or Wisconsin University by attendance at Leipsic or Heidelberg. Some have had almost no chance to se-

cure an education except by home study. Some teachers in our Normals have scarcely been outside the boundaries of the state, while others have mental pictures of all the most interesting scenes in America and Europe. How can there be perfect unity of ideals growing out of this diversity of reals? It is impossible. No two of these teachers, teaching spontaneously, could teach in the same manner the history of the battle of Bunker Hill. They would not have even the same notion as to what to teach in the perfect lesson on that topic, omitting no essential and inserting no trifle.

We are forced to the painful conclusion that the Board of Regents might get a better unity of ideals, though not a perfect one, by dismissing all the members of all the faculties and employing persons who have at least had the same school privileges, in the same cities. We hope, however, they "will rather bear those ills they have than fly to others that they know not of."

But in spite of these wide differences in the teaching force, there may be conditions under which a reasonable degree of unity may be found. In the settlement of all school questions, much depends upon the spirit of the teachers. If that is right, if they are believers in the things our Normal schools stand for, if they are enthusiastic, anxious to get more light, determined to do the best the circumstances permit, reforms are not only possible but relatively easy. But, if a teacher is not in sympathy with Normal school ideas; if he is specializing beyond the needs of preparation for work in the common schools; if he is oblivious to the thread of teaching for the teacher that runs through all our Normal work; if he ridicules the observation, or practice, or school management, or any other of the accepted helps to a right interpretation of the principles of theory and art, he should be quietly relegated to some other field of usefulness.

When all teachers in Normal schools have a firm belief in Normal schools and can agree even upon the most general agencies to accomplish the purposes for which the schools are established, we shall be in a fair way to make some progress toward unity of ideals.

Specifically, however, the lever of authority is necessary to lift a school up very near to a unity of purpose. No matter what may be the belief of the teachers, some authority will be found necessary to keep the work well up to the vantage ground of unification.

Every school should have an amplified syllabus of work from the primary through the Normal grades. This syllabus should indicate briefly not only what should be done, but, to the extent of a general method, how it should be done. It should enable the practice teacher who has a geography class in the sixth grade to teach that class so there shall be no glaring discrepancy between her work and that suggested in the professional review class when sixth grade teaching of geography is under discussion.

This means that there should be at least an approach to harmony of ideals among heads of departments, supervisors of practice, and directors of model grades. If they do not harmonize, the head of the school must be the great harmonizing agency and harbor the dove of peace even at the cost of war.

Another condition which makes a syllabus necessary is the frequent changes in the teaching force. No matter how good an understanding there may be between the heads of departments and the

model teachers this year, a shift of the work or the resignation of a teacher or two will disorganize the whole matter and produce chaos next year.

Another influence in the direction of unity of purpose is a systematic consultation between members of the teaching force in Normal grades and those in the model grades concerning the practice work. This of course can be done only after all have inspected the work of the practice teachers. To bring about this co-operation in the River Falls school, the heads of departments have been urged to visit, as frequently as possible, the student teachers in their practice classes. To make this visitation as definite and tangible as possible, blanks have been prepared upon which the visitor makes a report along certain lines of inspection. These involve the preparation of the teacher, control of the class, nature of the questioning, and various other matters considered essential.

The theory concerning this inspection of practice work is that the Normal grade teachers will take a deeper interest in the practice work, realize more fully where lie the dangers to the pupils in their own classes, strengthen the judgment of the supervisor and the president when fitness for graduation is to be determined, and, in general, bring about the sympathetic understanding of one another's difficulties which is absolutely necessary to the best co-operation.

It must be confessed that the plan has not met with the highest success, though much good has grown out of it. The chief difficulty lies in the fact that the heads of departments who are teaching five or six classes a day cannot find time for the inspection. But, though this visitation is not so frequent as is desirable, I have found the reports of the teachers a great advantage to myself as supplementing my own opinions made after my own inspection of practice work which is frequent and persistent.

To summarize this division of the topic, "Unity in any one Normal school," it may be said:

1. All Normal teachers must be in sympathetic relations with Normal school ideas.

2. All teachers must meet upon a common ground of general method even if many concessions are to be made.

3. There must be a printed syllabus in such detail that there shall be no grave contradictions anywhere in the school.

4. The president of the faculty must be the final arbiter as to matter and method, acting always within the limits of studies prescribed by the Board of Regents.

5. To exercise this last named function intelligently, the president must know familiarly the trend of all the instruction in his school, and constantly use his influence toward harmony of ideals and purposes.

The second division of the subject, "Unity of the system of Normal schools," shall be treated briefly.

Three years ago I read a paper before the Wisconsin Teachers' Association on the subject, "Need of greater uniformity in Normal courses," but it was not listened to by many Normal teachers as it was presented before the Normal section.

Although that was previous to my administration of Normal work I have not since changed my mind concerning the doctrine therein

advanced, and while I do not for a moment think the paper in question had the least influence upon the Board, it is nevertheless true that at present there is much greater unity in the Normal school work than there was at that time. No such diversity of subjects and allotments of time to the same subject exist. The Board has made the field much more definite and has established the courses of study within much narrower limits than they then had.

Individual preferences of the several presidents aside,—and it isn't to be expected that they will ever be unified except upon the broadest grounds,—the whole question is one of authority and must rest with the Board of Regents. They need to go no further than to prepare courses of study which shall not contain one elective or optional subject. If trigonometry is an essential for the preparation of a teacher for the public schools of Wisconsin, it is as much so in River Falls as in Oshkosh.

There is nothing in the statutes or in reason which demands that we hue to any other line than the one line of fitting teachers for the public schools.

It would greatly assist the unification of purposes, whether it would have any influence upon ideals or not, were the Board to lay out a course, or the necessary series of courses, for one school, and require all the schools to follow it. It should show what subjects are to be taught, just when they are to be taught and how long they are to be taught. In connection with these courses interpretation of the meaning of certain subjects should be made. No two schools seem to have the same understanding of what is the nature and scope of Observation, or Elementary Psychology, or the significance of the term Methods.

When made, these courses should be administered by the presidents with as faithful adherence to specifications as builders in wood and stone.

Our Normal courses all look toward the same legal reward. Why not make the requirements as near alike in all the schools as the individual differences in the actual instruction will permit.

If the president is not sufficiently exacting in his administration of definite, unequivocal courses in which credits and conditions of all classes of students are outlined in unmistakable terms, the Committee on Graduating Classes, if constituted as it has been lately, can easily detect the discrepancy and the Board can quietly relegate the offender to some other field of usefulness.

Finally, let me suggest that there is no one feasible, available agency for the accomplishment of a unity of ideals in the system of Normal schools that can compare with such a convention as we are holding on this occasion. Though we may seem here to have opinions diametrically opposite, no one can go back to his work without some definite modification of his ideas and ideals, and the wide and more shallow stream of Normal school doctrines will be forced into a deeper and swifter and more powerful current.

PROFESSIONAL REVIEWS.

THERON B. PRAY, Stevens Point.

Of those who offer themselves to the state Normal schools as intending to prepare for teaching, many are lacking in the essential elements of a good education. They may have made a fair degree of progress in the common branches, and may rank as the better pupils of the district schools from which they come, or they may be the more ambitious or needy members of the graded schools who cannot afford the expense of time or money to follow a full high school course but must help themselves to an education. If these enter the Normal schools they are given under good teachers a two-years course embracing the subjects they must teach, in which the state wisely prescribes an examination to determine the proficiency of those seeking employment in the public schools. In our elementary course as at present established, there is given to each of the following branches, geography, grammar, physical geography, history, arithmetic, physiology, a period of ten weeks; to reading and to civil government two such periods. Students enter this course either upon second grade or third grade certificates, or by examination. Many also enter having first grade certificates and receiving some credit on the common branches in which they are most proficient. Those who have not taught have been examined upon the elements of the common branches. They are given a fairly thorough course, such as the limited time permits, in the common branches as well as in theory and art. Hence in the discussion of methods and in practice teaching, their knowledge of subject-matter is reasonably fresh.

The graduates of high schools entering our Junior class, are for the most part younger than their classmates who are not high school graduates. They have less maturity and knowledge of the world. They have been more fortunately situated and have been kept in school. A very large proportion "finished" (i. e., stopped studying) the fundamental common branches in the seventh or eighth grade, or at best in the first year of the high school. It is no reflection on the high schools from which they come to say that young people from twelve to fourteen years of age are not likely to finish, with adequate comprehension of most important facts and principles and applications, such subjects as grammar, history, and geography, even though the fundamentals of arithmetic are mastered. Moreover, not all high school pupils will teach, and it is unnecessary and unreasonable to ask all pupils, irrespective of their prospects and purposes, to reach the same degree of mastery of all branches required of teachers of those branches. To consider profitably the theory or method of teaching any branch, the subject matter must be known. It is upon this ground, chiefly, that the Normal schools find justification for any academic instruction. Moreover, it is accepted pedagogical doctrine that the teacher must know more than he wishes to teach, and this almost inevitably leads to a later, more effective and masterful study than is possible for the pupil of immature years.

My view of the necessity of reviews for students entering advanced courses, especially from high school classes, is based upon experience

and confirmed by repeatedly expressed judgments of Normal department teachers, supervisors, and critics. High school principals not infrequently urge, and graduates of some experience in teaching often ask for, a more thorough course in the common branches than such pupils are required to take. It has happened that high school graduates have failed in practice teaching because so poorly taught that they did not know the subject, and did not know that they did not know it, until confronted with the necessity of organizing and presenting their knowledge through a lesson plan and in the presence of the class.

Having thus emphasized "review" of the matter, I would use "professional" to designate the attitude of teacher and taught, the point of view rather than any body of instruction. The future class to be taught should be vividly present to the mind of the student and his own mental state and process used to throw light on the problem of teaching. This seems to me the natural or "normal" state of mind in all Normal classes, but more so in these fundamental branches thus reviewed than can possibly be true in new subjects, like physics or chemistry. The professional element should appear in the "normal" state of mind intensified, the perception of method quickened and enlightened by the instructor in response to frequent question.

In conclusion: The scope of the "Professional Reviews" should include the five most necessary branches for all teachers; should aim at mastery of essentials, and such knowledge of methods and means as will lead to broader, surer scholarship; should reveal through personal experience the psychological processes and possibly best methods of presentation in accordance therewith; should freshen the student's knowledge and thereby give increased readiness and aptness to receive and profit by instruction in methods and practice; should give students new ideals of what constitutes excellence in attainment and clearness of expression. So far as it becomes necessary to choose between matter and method, my observation and reflection compel the preference for a review, leaving the questions of method to be dealt with more thoroughly in other classes under that name, having in the professional review prepared the way and revealed the nature of the problem to be solved.

REPORT OF COMMITTEE.

The Committee appointed to report upon the work done in the section of Teachers of Professional Subjects beg leave to submit the following:

While the papers and discussions in the section have dealt with a variety of subjects they have focused upon two: 1. The efficiency of the model school and its correlation with the Normal department. 2. The scope and character of the so-called professional reviews. Concerning the latter subject, papers and discussions in the section and the discussion in the committee revealed such wide differences of opinions that the committee was unable in the short time at its disposal to come to any conclusion which seemed fundamental. It

deeply regrets this as the subject is of such large importance because of the relation which the professional reviews bear to the work of the Normal schools and because of apparent differences between the schools of the system in the conception of the scope and character of work to be done.

The papers and discussions bearing upon the model school and its relation to the Normal department were well considered and suggestive. Collectively they emphasized the importance of the model school and the necessity of its intimate correlation with the Normal department.

Of the several methods of bringing about this correlation which have been presented, your committee has selected the following five, which seem to them to promise most and which are immediately workable. The committee submits them without discussion as they are fully discussed in the papers in which they were presented, and these papers, we understand, are to be printed for distribution among the Normal schools.

1. Teachers in the Normal department should visit one another's classes to observe methods of teaching; they should also systematically visit the model school for these purposes, to wit:

(a) To keep in touch with the child-life of the school;

(b) To observe methods of instruction.

All criticism on methods of instruction on the part of critic teachers or practice teachers should be made in writing to the supervisor of practice or to the president.

2. The critic teacher should have opportunity and should be expected to visit classes in the Normal department, especially classes in psychology, methods, and in the subjects taught in their respective rooms.

3. The course of study for the model school should be made out by the co-operation of the teachers in the Normal departments, the critic teachers, the supervisor of practice, and the president.

4. For the purpose of keeping in closer touch with the model school or for the purpose of illustrating method, the teachers in the Normal department may occasionally take classes in the model school for a series of weeks.

5. That the model school may be what its name implies and be a suitable place for observation as well as practice, the critic teachers should teach at least one third of the time.

J. Q. EMERY,
R. H. HALSEY,
CHARLES MCKENNY,
T. B. PRAY,
ALBERT SALISBURY,
Committee.

SPECIAL REPORT FROM SUPERVISORS OF PRACTICE.

Presented by ROSE C. SWART.

The supervisors of practice, though not organized as a separate section of this institute, have held three meetings, and realizing that it is much more important and helpful to be constructive than critical,

have decided to formulate certain essentials, which from their point of view are necessary to the success of the practice teacher from the beginning and which he should therefore be in possession of before applying for practice.

We are not prepared to do this now, except in the most general way, and this report is merely a tentative statement, which we should like to follow later with one more detailed.

We wish now to emphasize a few suggestions which have been repeatedly presented on this floor this week, and which the supervisors of practice feel can be and shound be immediately acted upon.

1. Adequate scholarship in the branch, and in addition to that, a knowledge of the peculiar nature and values of the branch, in all of which knowledge, practice teachers are now found to be deficient.

2. A working bibliography of the branch both academic and professional.

3. An authoritative statement of the accepted terminology of the branch, especially in the case of English grammar.

4. An authoritative statement of the meaning of terms in psychology and pedagogy; for instance, such terms as principle, law, method, recitation, image, individual notion, general notion, and the like.

5. A record of the student's promise of teaching power in addition to rank in scholastic attainment, and investigation of a student's fitness for continuance of his professional course, when a sufficient number of statements recording small promise on his part have been reported.

6. A course of study in the different branches taught in the model school, submitted by the department heads teaching those subjects in the Normal proper for discussion and adoption, to the faculty, or to a committee designated by the presidents of the different schools.

SCIENCE SECTION.

Leader, A. A. UPHAM, Whitewater.

PURPOSE, SCOPE, AND PLAN OF WORK IN PHYSICS FOR THE NORMAL SCHOOLS.

A. H. SAGE, Oshkosh.

In the following general outline of the purpose, scope, and plan of work in physics for the Normal school, no attempt has been made to enter with fullness into details nor to discuss those peculiarities which must result from the necessary differences pertaining to the different Normals. But the broad, salient features of the three points under consideration are here presented according to the view of the writer.

Purpose: In general, it may be said that the aims in the presentation of physics in a Normal school should not be essentially different from those in any other good school, except that the pedagogy of the subject should receive proper attention from the standpoint of the student as a prospective teacher. The chief aims may, therefore, be stated as follows.

1. The chief aim in an elementary course in physics should be to secure to the student the best possible discipline. But when it comes to more advanced work, other aims than discipline should take chief place.

2. A second aim is found in the value of the *subject* to the student, and that from two points of view,—first, the point of view of an interest in nature itself, and second, from the standpoint of the systematic character of the subject viewed as a science.

3. A third aim is found in the fact that the student is preparing for the work of teaching and, therefore, is entitled to all that the combined forces of the school can contribute to his attainment in that line. In this connection it must be kept in mind that a large part of our students will never teach physics as a science, that a few will teach the subject without further preparation, and that a small, but constantly increasing number will go on to other schools for further preparation. Neither of these three classes is so small that it may be justly ignored. The Normal schools of this state are striving to give due attention to all three, and this is, I believe, as it should be. Teaching is an art, not a profession, and should be taught by example, by practice in real not artificial teaching, and by discussions and criticisms based on real experiences of the individual who is to be benefited by the criticism. To this end the work in both class and laboratory should exhibit—

1. Expert teaching on the part of the teacher.

2. Appropriate and oftentimes express emphasis upon fundamental pedagogical principles as exhibited in the actual work of the class.

3. Special and frequent exercise in the presentation of work for the real instruction of the class by the student.

4. Constant correlation with other branches and especially with those of the usual school curriculum.

The signfficance and application of these four statements will appear more fully in connection with the plan of work as set forth below. I wish to state, however, that I do not approve of turning a physics class into a professional training class, or of making physics, as it seems to be so absurdly named, a professional subject. The philosophy of teaching and the art, too, so far as it is exhibited in the class-work, must be strictly incidental and subordinate to the other purposes of the work or both will lose their chief interest and value to the student.

Scope: Under existing conditions, this seems one of the most perplexing phases of the subject. This perplexity grows largely out of the following facts: Most of our students will not teach physics, some will teach it, and some will continue their studies elsewhere. Also the recent accession of large numbers of high school graduates greatly complicates the problem. These, owing to immaturity and inexperience and long continued training in empirical knowledge, show a remarkable aptitude for mere lesson getting and feeble and sometimes even dulled capacity for logical thinking. They are in direct contrast with the country boys and girls whose close contact with real things and conditions has made them good thinkers and poor at lesson getting. Again it is pre-eminently true that the equipment most radically and fundamentally affects the character and scope of the work. None of the Normals is equipped as it should be either as regards selection or adaptation. The work which should be done

is greatly modified and curtailed by lack of suitable facilities. These unfortunate conditions might be much improved, not so much by larger expenditures of money as by more judicious management. Money once appropriated to the needs of science in a given school should not be recalled because the teacher has not made haste to spend it within the limits of the specified time. Equipments for science work are not to be purchased as men buy dry goods. Having purchased in haste, however, because it must be that way or not at all, the scope of the work is thereby affected and often to the disadvantage of all concerned. The time element, however, largely determines the scope of the required work in physics, at the present time. High school graduates are required to take only ten weeks and no student is required to take more than twenty. Scope is not so much the question under such circumstances, but rather: Can anything be done with sufficient continuity and emphasis to give it permanent value? Forty weeks of science, however, are required in some courses and so additional work has been furnished to meet this demand from which the student is permitted to elect. Thus the student who has the required twenty weeks and elects twenty more in the same line finds it possible to secure a fair knowledge of the field of physics as usually covered in an elementary course. For these various reasons it is not surprising that great differences exist in the different Normals, nor is it easy to see how uniformity can be attained even if it were desirable. Uniformity, however, should not be a guiding principle in such cases. No hard and fast limits should be set to the scope or to the character of the work done in physics in the different Normals. This does not mean that there are no common elements which are fundamental and essential. Certainly enough actual academic work should be required of the student to give him such a knowledge of physical laws and principles as to place him in touch and harmony with and in appreciation of those tremendous commercial, economic and scientific forces which constitute the substantial basis of modern civilization. This cannot be done in twenty weeks. Anyone who expects to make any intelligent use of such knowledge, or to lead others to do so, must have better training.

One year of thorough class-work accompanied by a suitable parallel course in the laboratory may fit the student to fulfill intelligently the double function of teacher and citizen as regards his relation to the physical world; but even this cannot fit him to be a satisfactory teacher of the subject as a science, unless, perchance, it may act as a guide to him in that further acquisition of such knowledge and discipline as will fit him for the work. Therefore, I am inclined to approve the limited required course of twenty weeks with opportunities for elective continuation of the subject for those who have the inclination and capacity substantially as now provided by the Board, excepting that I would recommend that provision be made for a possible continuous study of the subject for forty weeks as an elective in addition to the required twenty weeks. This sixty weeks of work will afford forty weeks for the elementary study of the whole field of physics and twenty weeks of such intensive work along important lines as will give the student the stamp of quality as well as quantity.

On the other hand, the minimum requirement of twenty weeks af-

fords a little culture and a mutually satisfactory relief for all concerned to that large percentage of plodding aspirants to whom teaching can never mean anything more than faithful service along well established lines of very elementary instruction and drill.

Plan: The plan outlined is not assumed to be the best plan that could be devised. It is a practical plan, one in actual use, and may serve as a basis for discussion looking toward something better. The outline is for a year's work.

The work is divided into First, Second, Third, and Fourth Quarters in conformity with the Normal school calendar, and may be divided as follows:

First Quarter.—Constitution of Matter, Force, Motion, Energy, Mechanics of Solids.

Second Quarter—Mechanics of Fluids, Sonorous Energy—Sound.

Third Quarter—Molecular Energy—Heat, Radiant Energy—Light.

Fourth Quarter—Magnetism, Electricity.

The work on the science of Matter, Force, Motion, and Energy must of necessity be somewhat inconcrete and should therefore come later in the course, but since these fundamental notions underlie all successful work in physics, the student must be given the essential elements in the science of these topics. Sound is first considered after Mechanics because the only new principle involved, aside from those seen in Mechanics, is that of wave motion. Heat and Light are from their very natures intimately connected, and one leads naturally to the other. Electricity and Magnetism may be placed earlier in the course provided it is intended to confine the work to the study of the phenomena and effects concerned, but if any fundamental notions of the tneory and underlying principles are to be given, they should come later in the course.

Two simultaneous courses should be given, one in the classroom on the general theory, and one in the laboratory for practice and the application of the principles studied.

The class-work should be conducted on the combination recitation and lecture plan with careful guarding that the latter is confined to its proper place. The recitation method should hold chief place, not only because it gives the best discipline and secures the most intimate knowledge of the facts, but because it best illustrates the kind of teaching which the student must do in the future, and thereby becomes a model in the art of teaching. But when the student has made such a discussion of the topic as he can, it often happens that the teacher finds further instruction and elucidation desirable. This is the place for the lecture method. Let the instruction be given in such a way as to afford an example of the clearest and most forcible teaching. At other times the lecture should precede the class discussion in order to pave the way for the proper understanding of the subject, as in the case of sound waves. No student of elementary physics can be expected to understand the structure and action of a sound wave from information given in books; hence, as such waves are not ordinarily observable phenomena, the teacher's discussion of the subject will precede the student's work.

There is one phase of the class-work which should not be overlooked in any Normal school course. The student should be called on frequently to come before the class in the complete presentation of some theme as a whole. This should be done often without pre-

vious warning and less often by special arrangement. The class may be allowed to question the speaker and to make known to him that he has or has not succeeded in making the subject clear to them. It is often highly advantageous to invite the closest professional criticism of work thus presented.

The topical plan of preparation and recitation is recommended. This affords clearness and unity in the preparation of the lesson and in the subsequent discussion. Both the laboratory work and the text-books should contribute to the preparation of the topics. To this end some well planned system of outlining the lessons should be employed. In my own work I have found a syllabus in which the topics for discussion are arranged and subordinated in such a way as to aid in grasping the essentials of the science to be most helpful. Appended to the various topics in the syllabus are such references as are needed to guide to a proper study of the subject. The best modern text-books should be kept before the class in sufficient quantities for ready reference not only because this gives the broadest opportunity for reference, but particularly because the student thereby becomes familiar with the merits and defects of the various texts. These are frequently discussed in class. It is a great educational force to give frequent written lessons or recitations instead of oral ones, after which the written papers are distributed to the class for them to mark. They are then taken up and reviewed and each student is given two credits on the lesson, one on the merits of the paper he wrote and one on the excellence of the ability shown in marking his fellow student's paper. Generally the marking of the paper is better training than the writing of it. Within reasonable limits do not disturb the mark given by the student, but when a change seems needed, the student who marked the paper should be consulted and made to feel a due responsibility for the ultimate credit given.

So far as the subject itself is concerned, the laboratory work is the better half of the course. The most essential features are outlined in the following propositions:

1. The laboratory course should accompany and as nearly as possible run parallel with the class-room course.

2. The experimental work should be individual, that is, not done in mass or class groups simultaneously.

3. Careful, purposeful direction should be given as a preliminary to each experiment with special view to securing best possible effort on the part of the student without needless consumption of time and energy.

4. The best results are generally secured from quantitative experiments; hence, this class of work should constitute the backbone of the course.

5. The experiments should be selected with a view to giving the student the best possible types of experience.

6. The student should be required to make such a report of his work as will show—

1. The method of manipulation employed.

2. Capacity to describe apparatus and to make proper use of the necessary technical terms employed.

3. Increasing skill in observing and recording data.

4. Growing intelligence in the application of his theoretical knowledge and in making deductions.

5. Expertness in the presentation of scientific knowledge.

Concerning the first and third of these propositions there will hardly be a difference of opinion; but, as regards the second, difference in practice certainly exists For each individual to perform his own experiment independently cultivates his individuality, strengthens self-reliance, cultivates resourcefulness and ingenuity, leads to more independent and thoughtful observation, cultivates a more philosophical attitude, and gives a greater elasticity in time limits for sober, thoughtful consideration of the significance of the prenomena observed than does the mthod or plan of massing students in groups and working them together along the same line at the same time. The individual plan permits of the presentation of work on its own merits, work with greater scope and significance and requiring more skill in manipulation and more thought in interpretation than does the massing plan. Since it requires less duplication of apparatus, it is less expensive for the same grade of work.

The value of note-book work and reports depends on the manner in which the teacher follows up the effort of the student. It is folly to suppose the student can write a suitable report on his experiment while he is performing it. He should not be required to do more than record data at that time, and he most emphatically should be required to make a fuller report thereafter. Not that this should be done on all experiments, but enough should be required to secure a command of the language of the science, a good habit of expression, and such knowledge of the form and method of presentation of scientific thought as will give him the best command of that which he has acquired.

DISCUSSION—GENERAL.

Chairman Upham—It is the desire of Supt. Harvey that we shall come to some decision on some of these things, and if it is necessary, I think I shall venture to take a vote on certain things and get a majority report on them. Then, if there is a desire to have a minority report, we can have that, too; but I would like to take up some of these things.

The first thing that comes up here is the general purpose of the work in physics. "In general, it may be said that the aims and plan in physics in the Normal school should not be essentially different from those in any good school, excepting the pedagogy of the subject should receive attention from the standpoint of the student as a prospective teacher.

"The chief end in an elementary course in physics should be to secure to the student the best possible discipline. But when it comes to more advanced work, other aims than discipline should take chief place."

That is the question before the house. In a course in elementary physics, should the chief aim be the greatest possible discipline, and should discipline take secondary place in the more advanced course?

Mr. Ewing—It seems to me that the Normal schools have nothing directly to do with discipline. That the aim shall be to prepare people for teaching, and although I presume that is implied by the later statement in there, which you have not read, there seems to be an

exclusion of it here. I do not mean, however, to assume that that is the idea of the paper; but if I were going to make a brief amendment to that, I should include the whole of this aim as leading toward teaching. That is to say, where is there any warrant for the state to select out a certain number of its young people and discipline them? Discipline should be incidental. Just as in a medical school, or any professional school, the chief aim must be, if a medical school, preparation for the profession of medicine; if a law school, preparation for the practice of law. Discipline is subordinate.

Mr. Upham—Now we have an issue squarely at hand. Is it the function of the Normal school in connection with physics to give discipline to the students, or is the chief function of these schools to get folks ready to teach physics in lower grade schools?

Mr. Ewing—I did not mean that. Very few of the pupils will teach physics; but to reinforce teaching all along the line.

Mr. Culver—It seems it is the function of the Normal school. The comparison of the medical school is hardly fair. The medical student ought to have had, and it is coming to be demanded that he shall have his college course previous to taking the medical course. Not so in the Normal school. If we had college graduates in the Normal schools, then work should be strictly along certain lines, but we have to teach not only physics but how to teach physics. We have to do disciplinary work. The prime object, not secondary, must go first until discipline has been obtained for the students, and later exact attention must be given to the proper manner of presenting the subject. I should agree that discipline is the first thing to be considered in the elementary course.

Mr. Perisho—It seems to me that the principle is not wrong. May it not be true that this discipline spoken of will be one of the necessary things that the teacher must have before he can teach? I dare say that may be the idea, that this will lead up to the possibility of making a better teacher because of the discipline he has received in the subject under consideration.

Mr. Upham—I wish to call attention to the fact that this is applicable to everything else during the week.

Mr. Merrill—Is it not true that the teaching of a subject correctly is in itself the best possible discipline? It would not mean to us, perhaps, that we would be willing to say that we should teach the subject of physics in any other way except the best way in order to get discipline. But since the best teaching of physics not only gives the best discipline, but prepares the teacher best for teaching it, therefore discipline is the principal thing, and it is also a preparatory thing to the teaching of physics. Therefore I should say with the author of the paper that the chief aim is to give the best possible discipline. That of itself gives the best possible power to teach.

Mr. Upham—That is one of the questions I have been trying to settle for twenty years, whether it is true or not that the best way is to teach the subject in the best possible way, and the discipline will take care of itself; that is, if we teach the subject in the proper manner the one who takes it will be able to teach the subject himself.

Mr. Young—I agree with Mr. Culver that if we were dealing with college graduates in this matter of preparing for the profession of teaching, as a great many of the medical schools are, then we could make the direct aim an end in itself, to enable the teacher the better

to present the subject to students throughout the country, or to reinforce other work, whatever it may be; but at the same time a medical school does not confine itself entirely to teaching how to do certain definite things. There is some discipline included. I would like to ask Prof. Sage to state, in a few words, what he means by securing to the student the best possible discipline.

Mr. Sage—I mean about what has been brought out by the discussion; and that thought would harmonize with the statement that was made, that the first function in one sense, in a Normal school, is the function of preparing people to teach; but I do not believe that you can possibly superimpose ability to teach upon ignorance. The student must have such a knowledge of physics as will give him power of mind, and be so trained that he can apply his power of mind to other things and apply his pedagogy to the work he may have in hand when he goes out to teach. Of course it should tend all the better to make him conscious of his ability as a professional,—as a person who understands his business as a teacher.

Mr. Upham—(Reading from Sage's paper.) 2. "A second aim is found in the value of the subject to the student, and that from two points of view,—first, the point of view of an interest in nature itself and, second, from the standpoint of the systematic character of the subject viewed as a science.

"3. A third aim is found in the fact that the student is preparing for the work of teaching, and, therefore, is entitled to all that the combined forces of the school can contribute to his attainment in that line. In this connection it must be kept in mind that a large part of our students will never teach physics as a science, that a few will teach the subject without further preparation, and that a small, but constantly increasing number will go on to other schools for further preparation. Neither of these three classes is so small that it may be justly ignored. The Normal schools of this state are striving to give due attention to all three, and this is, I believe, as it should be. Teaching is an art, not a profession, and should be taught by example, by practice in real, not artificial teaching, and by discussions and criticisms based on real experience of the individual who is to be benefited by the criticism."

This is a question that comes up, Shall I, in my work in physics, with my elementary class, consider and keep in mind that two thirds of them never will teach physics, and direct my work to them particularly; or shall I keep in mind the fact that a few are boys and will go on and teach physics, and I must do the work just as though the others of the class were not there? That is the great question that confronts us who are teaching elementary physics,—how to arrange for these two classes,—for the girls who will never teach physics and will not get much out of it anyway, and for the boys who will teach physics.

Mr. Dudley—It seems to me that that question has been answered in the previous one. If the aim of the course is to give discipline, then it should be shaped with that aim in view, of course. And what will be accomplished for one, even if it is true of those boys who are going to teach physics, it may be in the way of training, in the way of discipline, will be accomplished for all the rest,—those who are never going to teach physics. If it is the fundamental aim of the course to give discipline, that settles it.

Mr. Merrill—It is true, it is not? that while a number of those who teach will not teach physics as a science, yet they will use experiments in physics in all grades of the public schools, and therefore that should be one aim in teaching the subject; and it has been set forth here in the first sentence, perhaps, by the author, when he says that one aim is to prepare them for the work of teaching. And no small amount of value can be attached to the experiments in physics that teachers even in the first grade may give, and should give.

Mr. Perisho—I have nothing to say except this: If the course in elementary physics be properly given, will it not prepare the student for teaching physics, so far as it goes? Will it not do the most good for the student if he does not teach physics, and will it not be what he wants if he goes on and studies more physics?

Question—What is the "properly?" How shall I do it in order to reach both these clesses?

Mr. Perisho—If physics is taught as it should be taught, will not all these classes come under the same head? Must we teach physics differently if we know a student is going on to the university, than if he is never going to teach the subject of physics at all?

Mr. Upham—There are many folks who believe it should be taught differently.

Mr. Case—I am one of the persons who do not believe in differentiation of elementary from the so-called advanced course in our schools. I am not prepared to say that any are fit to teach in a high school when they leave, and the best I can do is to teach them first to be accurate, and second, to have ability to operate apparatus. The proposition with me is simply this: a girl cares nothing about it, and many of the men, and they come in to me and get under my tuition simply what Mr. Sage has given as discipline, accuracy in figures, and some real ability to handle apparatus. Then they can perform experiments in the grades. It makes very little difference whether you give people ability to operate on one or the other end of physics. The course might run through the year, and then approximate Mr. Perisho's course. The girl may take ten, twenty, or forty weeks, and then have had training in only a portion of physics. It is true that it is not necessary to fit students to be able to make experiments on electricity,—they can follow directions. Education is ability to follow directions, look up references, and use them. That I call discipline. If others have courses to run forty weeks, I should put the course so that the people can step in or step out in any ten weeks, making as nearly a separate unit as possible of any ten weeks, and then I should attempt to give them only drill in manipulation of apparatus, and drill in figures, and I do not care if they do not remember laws. If they learn to follow directions, and to be accurate, that is all I expect the average person to remember.

Mr. Perisho—I want to ask Dr. Case if we understand that he is going to teach physics differently if he knows that the student under his instruction is not going to pursue the subject longer than ten or fifteen or twenty weeks. Does he differentiate in the beginning of his course?

Mr. Case—My idea is not to differentiate, to make each ten weeks of equal disciplinary value. The subject-matter will be the same as what they would get later on.

Mr. Dudley—There is one thing Mr. Case has just said that ought to

have a little attention, i. e., that the ability to manipulate apparatus and to follow directions is not the only thing that should be brought before the student's mind. That can be done with anything else than physics, any science which involves the exercise of the mind. A girl can be taught to do house-work, or a boy can be taught manual training, and those two things are just as fully accomplished with those two lines of work as by the study of physics. Even though the student is going to accomplish nothing more at the end than to follow directions implicitly, and to manipulate apparatus accurately, unless he has some motive back of what he is doing to act as an incentive for all of his actions, for what he does do to insure this to him, to think carefully, work accurately, and draw his conclusions, the work has no value as discipline.

Is not the motive presupposed? If the student is studying physics he is getting the discipline. I admit that manual training would do just as much good, if it were accurately handled, as physics would. But this person is taking physics to introduce him to a different line of thought. The motive comes in as a necessity of the experiment.

This is not included in your statement. Every student must have at the outset some kind of a problem which he is to solve by his work individually, and by his own method.

Mr. Upham—Now we have four statements as to what teaching should consist of; there is no question about that.

1. Expert teaching on the part of the teacher;

2. Appropriate and often times express emphasis upon fundamental pedagogical principles as exhibited in the actual work of the class;

3. Special and frequent exercise in the presentation of work for the real instruction of the class by the student;

4. Constant correlation with other branches and especially with those of the usual school curriculum.

Those apply just as well to one subject as to another, to biology, or to chemistry. We have finished up a little discussion of the purpose here. I would like to take a vote of this section. How many agree that the purpose of physics in the Normal school is approximately as laid down here? * * * Is it for discipline? Is that the chief end of an elementary course? or is it,—Shall we give the same physics for folks going to the university as for folks who are not, and what will they get out of it?

Mr. Dudley—Will that same vote apply to all the other sciences? Is it discipline?

Mr. Upham—I won't make you vote on the other subjects until we have discussed them. Is it your opinion that this paper has substantially stated the purpose of physics in the Normal school? 11 in favor; 1 against.

Mr. Upham—We will now take up the scope, which is a very important thing. (Reads from Prof. Sage's paper.)

"Under existing conditions, this seems one of the most perplexing phases of the subject. This perplexity grows largely out of the following facts: Most of our students will not teach physics, some will teach it, and some will continue their studies elsewhere. Also the recent accession of large numbers of high school graduates greatly complicates the problem. These, owing to immaturity and inexperience and long continued training in empirical knowledge, show a re-

markable aptitude for mere lesson getting and feeble and sometimes even dulled capacity for logical thinking. They are in direct contrast with the country boys and girls whose close contact with real things and conditions has made them good thinkers and poor at lesson getting. Again it is pre-eminently true that the equipment most radically and fundamentally affects the character and scope of the work. None of the Normals is equipped as it should be either as regards selection or adaptation. The work which should be done is greatly modified and curtailed by lack of suitable facilities. These unfortunate conditions might be much improved, not so much by larger expenditures of money as by more judicious management. Money once appropriated to the needs of science in a given school should not be recalled because the teacher has not made haste to spend it within the limits of the specified time. Equipments for science work are not to be purchased as men buy dry-goods. Having purchased in haste, however, because it must be that way or not at all, the scope of the work is thereby affected, and often to the disadvantage of all concerned. The time element, however, largely determines the scope of the required work in physics at the present time. High school graduates are required to take only ten weeks and no student is required to take more than twenty. Scope is not so much the question under such circumstances, but rather,—Can anything be done with sufficient continuity and emphasis to give it permanent value? Forty weeks of science, however, are required in some courses and so additional work has been furnished to meet this demand from which the student is permitted to elect. Thus the student who has the required twenty weeks and elects twenty more in the same line finds it possible to secure a fair knowledge of the field of physics as usually covered in an elementary course. For these various reasons it is not surprising that great differences exist in the different Normals, nor is it easy to see how uniformity can be attained even if it were desirable. Uniformity, however, should not be a guiding principle in such cases. No hard and fast limits should be set to the scope or to the character of the work done in physics in the different Normals. This does not mean that there are no common elements which are fundamental and essential. Certainly enough actual academic work should be required of the student to give him such a knowledge of physical laws and principles as to place him in touch and harmony with and in appreciation of those tremendous commercial, economic and scientific forces which constitute the substantial basis of modern civilization. This cannot be done in twenty weeks. Anyone who expects to make any intelligent use of such knowledge or to lead others to do so must have better training."

Mr. Upham—How much physics shall we take?

Mr. Culver—In this connection I should like to get from each of the teacners present a statement of what he does. How long are your elementary courses in physics?

Mr. Ewing—Twenty weeks, covering the five subjects,—general conception, heat, light. sound, and electricity.

Mr. Culver—What of these five do you do in your twenty weeks?

Mr. Ewing—I deal with what you call general concepts, and heat.

Mr. Case—I have practically thirty weeks, and I deal with all except electricity, and I have an optional ten weeks in which I try to cover the subject of electricity.

Mr. Culver—What you call the general subjects are heat, mechanics of solids, fluids, and light?

Mr. Perisho—The same thing, with a few introductory lessons in electricity.

Mr. Merrill—About the same that has been given, except some few experiments on light and some few on electricity.

Mr. Upham—Now I am in a hopeless minority.

Mr. Sage—Same.

Mr. Upham—I go over the whole five subjects in the twenty weeks. I do the work that way because the majority of my pupils never will have any more physics. I never have been able to bring myself to let those folks go out and not know anything at all about electricity, what makes the electric light glow, the telephone work, or street cars run. They must take a very superficial course, but they get some little inkling of it, and up to this time I have gone over the whole subject, but am weakening in it.

Mr. Ewing—I have tried, but have failed, and have got back to the other plan.

Mr. Upham—Well, the pendulum swings back; but what are we going to do? If you take twenty weeks for general concepts of physics and heat, they don't know a thing about sound, and things come up in the general work in the grades which they can't explain to the children and don't khow a thing about.

Mr. Ewing—And yet they are right in line to get a state certificate for life without an examination.

Mr. Case—Do you attempt to show them how they could find these things? to show in our general course the use of references and looking up so the will not be entirely helpless? In my work I do not have electricity, but the pupil is entirely capable of looking it up for himself.

Mr. Upham—Do you think he will ever do anything with it unless he has to?

Mr. Case—He will do a great deal if he has to.

Mr. Perisho—It seems to me we are going back over the old subject again. We decided that at the beginning of this discussion; that what we do, we should do well irrespective of what will be the result, or how much longer students will have the subject. It is impossible to teach with the accuracy necessary and cover the whole field. One other thing: The whole phenomena of electricity, not as we have it in our physics books, but as given in the phenomena of life, comes up in physical geography. I always show the electrical machine to my physical geography class, artificially made electricity, and so on. I try to show students how the subject goes right on, and try to prepare them so that they can go on and get something of that sort for themselves. What we ought to do is to do well what we do. Cultivate accuracy and secure ability on the part of the student.

Mr. Upham—Can't a student make use of a galvanic battery and learn about electro magnets? Just those two things? Spend two or three weeks, and do that well, even though no long course in electricity be taken? Have, say, a week's work and get a start for it?

Mr. Perisho—When you have taught your students thoroughly, or as nearly so as possible, say, heat, if they are able to go into the laboratory and find the specific heat of a substance, or do any other thing, are they

not able to go into the laboratory and work out some other things for themselves?

Mr. Upham—If a student has done a little in heat and done it well, he is able to do something in heat. But he has done nothing in electricity,—that is an entirely new field to him.

Mr. Ewing—He is just as able, but won't know it, and won't be adapted to it.

Mr. Upham—I am willing to be convinced, but have never seen any one yet who could convince me. I never have been able to see that my position is wrong. I do ten weeks of work in general physics, then take up a couple of weeks in sound, and we do certain things thoroughly. The experiments take up a couple of weeks in light or in heat; we just touch a little on light,—not much,— and then have five weeks in electricity. You can't do much in five weeks, but you can get students to have what you might call a speaking acquaintance with these things.

Mr. ———— —Do these students know anything about the subject of physics at all when they come to your class?

Mr. Upham—No. They don't know a wheel-barrow from a hand-saw.

Mr. Ewing—This is strictly the elementary course. How much does it help them when they get to the second course and go over the whole thing again?

Mr. Upham—It helps them a good deal.

Mr. Ewing—When you come to your advanced course, do you go back over this same field with your advanced students?

Mr. Upham—We do the spiral thing. Go round in a circle here, and then on a circle a little higher up. I am willing to admit that to some extent the subject is a "sucked orange." The elementary course has led them to think they have got all there is in it. The high school graduate thinks there is nothing he can learn in physics.

Mr. Ewing—Do you deal with such subjects as specific heat in your elementary course?

Mr. Upham—Yes, specific heat and co-efficient of expansion.

Mr. Ewing—Do they do anything with latent heat?

Mr. Upham—Not a thing.

Mr. Ewing—Just for their practical purposes, would it not be better to do something with those things, as they have some bearing in the matter of geography?

Mr. Upham—I think we did do an experiment in latent heat in the last course, but it was not very accurate. Latent heat is more difficult than the other.

Mr. Ewing—If I could do what I do, and then have four weeks left to skim over that, it would suit me better than to skim all along.

Mr. Upham—How many are of the opinion that it is better in an elementary course of physics of twenty weeks, to do as thoroughly as we may two of the subjects, rather than five? You all understand what we mean by the five subjects. All in favor signify by putting up hand. Ten for, one against.

Mr. Ewing—There is one other topic I should like to speak of. What shall be this one,—we have said heat. Mr. Sage says sound. He gives his reason for putting sound in and it is just the reason it should be left out and heat put in, that is, that it is nearer like the work that

they have had. I want heat in because it is different from the work they have had, and because it is more practical along the line of their general teaching.

Mr. Sage—I didn't state fully my reasons. There is another reason perhaps more prominent with me than the one here in the paper. The one given in the paper is that the principles involved in the study of sound are largely the same as in the study of mechanics with this one exception, that you introduce the subject of vibratory motion. Those who have studied physics go into it to get something out of it, to make it a supplementary subject in spite of the last vote. Another reason why I take up sound is this: As already stated it is a difficult thing to interest girls in the work early in the course in physics. There is no subject in physics in which they are so interested as in sound. They are interested in the subject from start to finish. I would put this same thing, work in sound, in the high school course. It has no particular association, but does interest them, and through the interest they come to have some appreciation and admiration for the principles of physics as they see them illustrated in that subject. I cannot interest girls at the beginning of their work in heat, nor light, nor even electricity, as I can in sound. That is my reason for putting it there.

Mr. Ewing—I think that is a better reason than the other one.

Mr. —I would like to ask one question. How many of those who teach physics are able to get periods assigned for laboratory work so that you can have any degree of comfort in supervising the laboratory work?

Mr. Ewing—I am getting on very well, much better than I used to. I think this present term all the students are enabled to come at periods when I can attend to them.

Mr. Case—I have two consecutive hours and am there all the time. The classes are limited to 24 and they are all there.

Mr. Culver—I am unable to get them all together. I generally have two sections, and it has been sought to arrange the two periods so that I could supervise. The arrangement is better now. I am adopting the plan of using some of the better students, some who have had forty or perhaps sixty weeks of physics with me, to supervise some of these laboratory sections under my general direction. That plan is in use at the present time with me and relieves the pressure somewhat, and I believe it is better than anything I have been able to do before.

Mr. Perisho—As Mr. Culver on that point. I have three sections and I am unable to be there. Sometimes a section will be very small, and always has as a supervisor some student who has been over the work before. The students in the three sections are doing the same thing at the same time.

Mr. Merrill—I have two consecutive periods in which the students are required to be present and work.

Mr. Sage—You understand that the conditions are a little different here than in the other Normals. Miss Carter is my co-worker in this work. There are 150 students in our laboratories all the while. We try to arrange our work as teachers so that one of us can practically be there all the time. The work is all conducted on the individual plan, each student doing his own work in his own time, without individual recitations.

Mr. Culver—Is it the ideal plan to have all students doing the same

thing at the same time? Is the work entirely individual? I do not care to have three people doing the same thing at the same time.

Mr. Upham—I have tried for three years to get apparatus so we could have people doing the same thing at the same time.

Mr. Sage—My idea is set forth here in the last of the paper:

"Concerning the first and third of these propositions, there will hardly be a difference of opinion; but, as regards the second, difference in practice certainly exists. For each individual to perform his own experiment independently, cultivates his individuality, strengthens self-reliance, cultivates resourcefulness and ingenuity, leads to more independent and thoughtful observation, cultivates a more philosophical attitude, and gives a greater elasticity in time limits for sober, thoughtful consideration of the significance of the phenomena observed than does the method or plan of massing students in groups and working them together along the same line at the same time. The individual plan permits of the presentation of work on its own merits, work with greater scope and significance, and requiring more skill in manipulation and more thought in interpretation than does the massing plan. Since it requires less duplication of apparatus, it is less expensive for the same grade of work."

Mr. Upham—I would like to have a vote. How many are of the opinion that the ideal plan is to have just as many as possible—as many as one man can attend to—do practically the same thing at the same time?

Mr. Perisho—There is another consideration here,—the discussion of the work done in the laboratory after it has been done. I want to vote with that understanding. I do that partially for the reason that tomorrow when the class comes into the recitation room I want all to have done the same thing so they can discuss it intelligently and get reports.

Mr. Upham—Before putting the vote I want to ask another question. These people who go in for the individual plan, or anybody else, do you have your laboratory experiments run along parallel with your texts, with your class-work, or does it come just as it happens?

Mr. Ewing—The class-work is based upon the laboratory work.

Mr. Case—The laboratory work follows the other.

Mr. Culver—As nearly parallel as possible.

Mr. Perisho—The laboratory work goes parallel to the class-work. We expect to discuss in the class-room tomorrow, more or less extensively, what we have done today.

Mr. Dudley—As I understand Mr. Sage, the massing plan is to have the same people work at the same pieces of apparatus.

Mr. Sage—No. They do the same experiment but with different pieces of apparatus. Take for instance, starting in a class in electricity, in blow pipes. If you start with them it is certainly important that the class get some experiments before taking up any work in regard to it. When you come to the question of measuring, I intend to get text first and experiment afterward. The laboratory work should run parallel with class-work, but put them where they belong.

Mr. ———— —If they do not do the same experiment at the same time, or if the apparatus is not sufficient to permit that, all being done in the same day, is there not more or less liability of a student having reference to the notes of another who has gone before on a par-

ticular experiment he is doing, and thus get a good deal of confusion between the teacher and pupils?

Mr. Upham—I would like to put the matter to a vote. How many are in favor of getting just as many students and just as many duplicate pieces of apparatus together as you can, all doing the same thing at the same time? Six. How many favor more the individual plan of not having pupils do experiments at the same time? Seven.

Mr. Perisho—Now when they are talking about not doing the work at the same time there is just as much individual work done when I have six students in my laboratory, perhaps two at this table, and four at that, all doing the same thing at the same time, with different and independent sets of apparatus. There is just as much individual work as there would be if this student did it today, another tomorrow, and so on. In fact there is more individuality, because these students are far enough apart and they are not communicating. They are not just exactly at the same place in their experiment all the time. And yet if you let this student do the work today, and that one do it tomorrow, if there is any tendency at all for communication won't that student say, "How did you do this?" "What did you do right here?"

Mr. Upham—Would you rather have twenty pairs of scales and twenty people doing specific gravity today? I had always supposed there was no question about what the ideal way was, to have sixteen pupils working at the same thing, I passing around and watching them.

Mr. ———— —If you had a class of twenty, all performing the same experiment, would not one perform it in five minutes, and another in thirty-five? What are you going to do with the rest of the time?

Mr. Perisho—In every department of science students do not work with the same rapidity. I have this method. If I have a problem assigned for a day, and that problem is too short for the swifter student, I have another problem for him.

Mr. Ewing—That is individual.

Mr. Perisho—I do not want this vote to go on record until we understand each other.

Mr. ———— —Is not the real thought that we all want to get individual work by the means that is at our disposal? Some use the mass plan of experiments all at one time, because there is no other way to do it. To many it is simply a necessity, not a choice. The proposition was stated as the ideal proposition, if we could have things just as we want them. My daily experience is just the other way. I am carrying the laboratory work and class work parallel, all doing the same thing at the same time. I am not securing the ideal, I would have it otherwise if I could, but my work necessitates my handling 125 students a day alone at laboratory work, and I can't get individual work under those conditions. The whole thing simmers itself down to this,—you may get the individual work by the pupils doing the same thing at the same time, providing conditions are such that you can supervise them and keep them away from each other. In this case they have got to communicate then or not at all. There is not a week or a day to compare notes with a, b, or c. It is the individual thing we are after, get it how we may.

Mr. Young—This will apply to biology the same as in physics. It is a general question. It seems to me that the question has been pretty clearly put by this gentleman and Mr. Perisho. We are after

this individual work, but at the same time have it as nearly together as possible. That is the ideal plan, and it is impossible to have a whole class who will keep exactly together. That is not desired, but this is desired, that you have a certain length of time for laboratory work on a certain subject. When that time is up, some students are through with their work, others have finished a little beforehand, others are behind. The laboratory should be left open provided the instructor has time to attend to this matter, for those who are behind. Some are two days behind all the time, and can't and won't keep up. So the laboratory should be left open and someone keep prodding them up a little all the time. Laboratory work should run parallel with this class-work, and experiments should precede class discussion, except in cases which Mr. Sage mentioned. The ideal plan is to have every student working with his own apparatus, independent of every other, as nearly together as possible.

Mr. Culver—I should like to emphasize the fact that we seem to all want individual work, after all.

Mr. Upham—The question is,—Can we get individual work better by running them parallel or running them tandem?

Mr. ——— —What objection is there to having twenty persons working at the same time, and as far as possible on the same experiment?

Mr. Culver—If they are working at the same experiment the dull slow ones always do what the others are doing, and simply blindly copy them, and do not do the thing. I do not agree with Mr. Case as to the object,—that skill in manipulation, and skill in figures constitute the chief aim of the work. This way of putting all the students on the same work would tend to just that mechanical sort of work which is not the aim, as I see it.

Mr. Young—I wish to speak partially from my experience as a student at one time. I had taken upon myself more work than I ought to do, and got behind in certain subjects, one happened to be chemistry. I confess that as a student, when I got a little behind, and got a little nervous about keeping up, that was the time I copied the other fellow. When I felt I was just about up with him, I could get there just as quick as he could; but when I got behind, the temptation was to copy the other fellow's note book.

Mr. ———— —Does every teacher of laboratory science here insist upon perfect order in the laboratory?

Mr. Sage—No.

Mr. Upham—How many of you insist in your laboratory on the same order that you have insisted on in the study-room?

Mr. Case—Do the gentlemen have the people working in couples? In that case they have to communicate, and you can not have perfect order.

Mr. Upham—I would like to ask one more question. Is there anybody of the opinion that laboratory work ought to be done by the pupils except under supervision?

Many—No.

PURPOSE, SCOPE, AND PLAN IN CHEMISTRY.

GARRY E. CULVER, Stevens Point.

Purpose.

I. To teach the nature of chemical work. More specifically,—

1. To differentiate chemical from other phenomena.

2. To show the conditions which are necessary in order that chemical action may take place.

3. To consider the phenomena of chemical action.

4. To consider the means of determining whether in a given case chemical action has really occurred.

II. To give some acquaintance with the fundamental principles of chemistry. Among these may be mentioned the following:

1. The law of definite proportions.

2. The law of chemical equivalence.

3. The molecular theory, and

4. The hypothesis of Avogadro.

III. To give facility in the manipulation of chemicals and of chemical apparatus.

IV. To give some practical knowledge of the properties of the principal chemical elements and of their more important compounds. This should lead to—

V. A realizing sense of the many and vital points at which chemistry touches life, and should furnish—

VI. An adequate basis for important phases of instruction in those other branches of science to which chemistry is fundamental.

VII. To give mental training and discipline and to develop the scientific habit of mind.

Plan.

The general plan is as follows:

I. Laboratory study of a group of related topics.

II. Recitations based on the facts brought out in the laboratory study.

III. Readings from reference works of chapters or sections related to the topics studied in the laboratory.

IV. Short lectures intended to clarify, to correlate and vivify the facts gained by the three methods above specified.

In detail this scheme works out somewhat as follows:

Under Purpose I, a half dozen experiments are performed in the recitation room by the instructor, and a dozen or fifteen in the laboratory by the students. These experiments are chosen with reference to the points enumerated under Purpose I,—1, 2, 3, and 4,—and serve not only to illustrate those points, but also to acquaint the student with some of the fundamental operations in chemical manipulation. One group of experiments illustrates the different means employed to bring about chemical action. Each group serves to illustrate in some degree the phenomena accompanying chemical action. One group involves quantitative operations, e. g.—The student is directed to weigh out a certain quantity of salt and another of sand, to mix them thoroughly and then separate and re-weigh. After these laboratory exercises, which are performed under supervision, the

whole matter is gone over carefully in recitation and the important truths set in relief. No special reading for this group.

Under II, different classes of reactions are studied, i. e., analytic and synthetic, qualitatively and quantitatively, by the student in the laboratory. Water is separated into its elements and the gases measured. The gases are made to combine and the quantitative relations established. Quantitative work in the formation of sulphides is also done. From these studies the laws given under Purpose II, 1 and 2, are shown to be true, and portions of the evidence on which are based the important theories under 3 and 4, are also obtained. Reading in the library supplements and expands this knowledge and the recitation sets all in order.

Following this group comes an extended series of laboratory studies of the principal chemical elements and their more important compounds. These laboratory studies involve—

1. Preparation of elements from their compounds, and
2. Study of the physical and chemical properties of these elements, and
3. Preparation of compounds from the elements and study of their properties. Many of these are qualitative only but some are performed quantitatively.
4. Chemical exchanges are considered from both a qualitative and a quantitative standpoint, thus bringing out the idea of chemical equivalence.

With regard to III, V, VI and VII, it will be evident that the results aimed at under these heads will be secured by the proper treatment under the heads already specified somewhat in detail, e. g., the mastering of the difficulties that attend many of the experiments, will give what is sought under Purpose III. The study of the chemistry of the air has a direct bearing on ventilation. The study of the chlorine group leads naturally to the question of disinfectants and to sanitation in general. The student who has formed water by burning hydrogen in an atmosphere of oxygen, hydrochloric acid by burning hydrogen in an atmosphere of chlorine, common salt by burning sodium in chlorine, and who has burned a jet of air in an atmosphere of hydrogen, has the material for a good conception of the meaning of combustion. While the difference between the quietly burning jet of hydrogen and the explosion of a prematurely lighted hydrogen generator must open the way to a clear understanding of the cause of the disastrous explosions that so frequently occur in mills and mines. These and similar studies will secure the ends aimed at under V and VI. While the close attention to details necessary in all this work, the planning of methods and the calculating of results, and the constant intelligent oversight of the varied operations give not only manual dexterity but furnish mental discipline and training that is not surpassed in excellence.

Finally, the careful collecting of evidence from the laboratory, the library and the lecture room, the weighing of this evidence, the slow forming of conclusions based on the evidence, the making of hypotheses and the study of facts and phenomena bearing on them, with the result of demolishing or of sustaining the hypotheses, the reading of the history of similar studies which have led to the establishment of the grander theories and laws,—all this, it seems to me, may be said to have a direct tendency toward developing what is

called the "scientific habit of mind," which, though mentioned here last, is by no means least of the purposes sought to be realized in our short course in elementary chemistry.

DISCUSSION—GENERAL.

Chairman Upham—The paper on chemistry is now open for discussion.

Mr. Culver—I will simply say that my idea was to present, as briefly as possible, the plan which I am following in the teaching of chemistry at the Stevens Point Normal school. The purpose as I have outlined it, is as follows:

First—To teach the nature of chemical work. More specifically—

Second—To give some acquaintance with the fundamental principles of chemistry.

Third—To give facility in the manipulation of chemicals and of chemical apparatus.

Fourth—To give some practical knowledge of the properties of the principal chemical elements and of their more important compounds.

Fifth—A realizing sense of the many and vital points at which chemistry touches life, and should furnish—

Sixth—An adequate basis for important phases of instruction in those other branches of science to which chemistry is fundamental.

Seventh—To give mental training and discipline and to develop the scientific habit of mind.

The General Plan.—Perhaps I can state the general plan without reading. In this work experiment precedes in nearly every case. Experiment is made the subject of discussion in nearly every case. A certain related group of experiments is always performed individually, sometimes collectively, but each one does it, and they keep as near together as may be in this respect. They then meet together in the classroom and the results of the experiments are discussed, and further information perhaps given by the instructor along this line. Then I usually, if the subject admits of it, assign some reading in the reference library that bears on the same line, and after that reading, there is further discussion of the same subject. Then another related group of experiments is taken up and followed right through. That is the general plan,—first experiment, then recitation upon it, reading, and perhaps some lectures or short talks by the teacher. That general plan is followed throughout, and all aims are supposed to be secured in that way.

Mr. Goddard—I agree thoroughly with the points that have been presented by Mr. Culver. There is just a point which seems to me worthy of being taken up more fully; that is, the purpose to provide discipline. I think in general that it may be said that the discipline to be derived from physics and chemistry is much the same kind of discipline in both cases; but it seems to me that there are one or two points in which the chemistry offers a peculiarly fine branch of work to develop certain phases of discipline, and I would like to call attention to one or two of those. I have just jotted down my ideas in connection with one or two of these points.

This discussion is one of general agreement with Prof. Culver's paper. However, I wish to emphasize some points and enlarge upon some briefly.

With reference to the value of chemistry, both as a disciplinary and an informational study, I feel that there is a tendency to underestimate its place in Normal school work as well as in high schools. In a number of respects, it seems to me, that chemistry has a value which is not excelled, if equaled, by any other science branch, especially in its disciplinary value.

First, it is exceptional in cultivating and quickening the power of close and accurate observation of objects and phenomena presented to the senses, especially where the data are somewhat obscured and not apparent at first glance.

Second, it is exceptionl in cultivating the power of clear and accurate reasoning by inference, i. e., from cause to effect, or vice versa. I maintain that no finer example of such reasoning can be found in any branch of science than is presented in the determination of molecular and atomic weights by the vapor density method, and much of the other work in chemistry has this superior value.

Third, it is exceptional in cultivating the power of rapid and accurate generalization, from particular facts and data observed to general conclusions or inferences.

I submit that these powers of mind are among the most valuable for use in life and especially in the work of a teacher. We are constantly called upon to draw inferences from observations of conditions and phenomena about us, and the correctness of our conclusions depends upon our taking into account all the conditions, and seeing them accurately. This is the problem constantly before the properly directed student of chemistry. These are exceptional disciplinary values.

I believe also that chemistry is very important for its informational value, although I shall speak only briefly of this as it was more fully dealt with in Prof. Culver's paper.

I will only say that the wide applications of chemistry in important industries; its important bearing upon domestic economy, agriculture, etc.; and its very close relationship to subjects like physiology, physics, etc., make it a subject of great practical importance in Normal school work as well as in high schools.

It seems to me that these values are too little appreciated by many, and that we as chemistry teachers should do what we can to bring about a better appreciation of the subject.

Right here, while all that has been said about discipline in physics is true, there is a difference in favor of the discipline in the subject of chemistry, for the reason that the data, the objects that are observed in the chemical work and reasoning that must be done upon those phenomena, are not so readily done as they are in the physics work. I believe that right here we come more thoroughly to the kind of training that people meet everywhere in life. The data are not always plain, but many times obscure. That is the reason people come to different conclusions, one person sees one set of conditions, another person another set of conditions. Chemistry affords unusual training in this way. Data are not apparent at first glance, but have to be looked over. Something may be said later in which this phase of the work can be brought out.

Second, to cultivate the power of clear and accurate reasoning. This follows along the same idea. Two students do not see alike, and they must be very careful to be accurate and very clear in their thinking on the data that they have. In this connection it seems to me that chemistry offers a number of phases of work which develop this power of reasoning from cause to effect, or effect to cause, perhaps better than any other line of work. I feel that there is an inclination to treat chemistry as a minor subject. It occupies a comparatively small place in the state of Wisconsin. It may not be so in other places, but is in this state considered a university subject, and has little value below. The subject of chemistry offers an exceptionally fine field for discipline in accurate observation, and careful, clear reading, and arriving at certain conclusions.

Another point which comes under the same head,—training to cultivate the power to produce an accurate generalization from typical facts and data observed. There the field of chemistry offers an exceptional field for the taking of certain data and working those out and arriving at some conclusion which can be made more or less general,—another power we need in life everywhere. We have got to take certain data which we can see, work with those data, and from them come to some general conclusions. The accuracy with which we do that determines our power to take up a great many of the questions of life. It may seem that I am talking about the kind of training high school pupils should have, but it is right in line with what was said in connection with physics. The kind of training to be given high school students should be given our students who may go out to teach, and need this training in all their lines of work. As teachers dealing with our children, we should aim to develop the faculty to take a great number of data which we see everywhere, and classify them and systematize them. In fact our power of acquiring knowledge, of arranging it so we can use it, depends upon our power, from all this large amount of data before us, of selecting certain differences, certain similarities, classifying them so that we can get what material we need when we need it. On these points I have ground for the statement that chemistry offers a subject which gives discipline along these lines in an unusual degree. Therefore the feeling that there is about chemistry, that it is a minor subject and should not be taught much outside the university, is groundless.

Mr. Upham—Your idea, if I understand it, is the seventh reason that Mr. Culver gives us, the great reason for chemistry, that is, discipline. The point we settled about physics would hold here.

Mr. Merrill—It occurred to me while Mr. Goddard was talking, that the practical knowledge of chemistry is not surpassed by any other subject. It deals with elements that surround us, that the teacher must constantly have in mind, illustrates and helps to make clear questions of geography, and various other subjects, and in that way becomes a valuable information subject, as well as a disciplinary subject. And I believe that the greatest value of chemistry is as an information subject. It has great value as a disciplinary subject, no doubt, but it touches us in so many ways, and especially in biology, and in all subjects relating to life that it becomes a valuable subject for the teacher to know.

Mr. Upham—I should say for Mr. Goddard's benefit, that in general

he can count on all the biologists in assisting him in any attempt to get an increased amount of time devoted to the subject of chemistry.

Mr. Culver—The chemists need all the help they can get.

Mr. Goddard—I found that with the exception of one or two schools, practically no chemistry is required of students. It is allowed to be taken as a science elective, but in our course here in Oshkosh it is required of the four years scientific students, English Scientific course, which includes a small number of students. Outside of that it is entirely an elective study. Very little chemistry is required in our Normal schools compared with the work required in physics.

Mr. Upham—Chemistry at Whitewater is optional with zoology, etc.

Mr. Culver—I should like to ask whether the conditions which obtain at the Stevens Point school in regard to chemistry, exist elsewhere. In two of our courses only twenty weeks of science is required to be elective, and if the students elect the chemistry, it will not count for that twenty weeks. They must elect something else, too. It is a sort of a ban that is put upon the chemistry with us. That is one reason I had for putting in that point, to give them a realizing sense of the great number of vital points at which chemistry touches life.

Mr. Dudley—I understood Mr. Goddard to say that it was required here in one course.

Mr. Goddard—It is required in the English Scientific course of four years.

Mr. Dudley—That is contrary to the rules of the Board. The rules do not require any chemistry. It is an elective study. I would like to emphasize that point a little, because it is a fundmental in straightening out some of our difficulties. There is more or less deviation from the requirements of the Board of Regents. We have no right to do that, no President has a right to do that. Of course I take that statement from our President. He has spoken over and over again, emphasizing the fact that we must do nothing that is contrary to these rules. The natural sciences that must be given are geography, botany or elementary zoology, physiology, physics. Now the electives are botany, zoology, chemistry, geology, physics, physiology. Chemistry is not a study that may be required, according to the rules of the Board, and according to the rules of the Board a minimum of 610 weeks in the course, and a maximum of 650.

Mr. ———— —In those elective subjects that you speak of, how much science is required?

Mr. Dudley—It depends upon the course. English 70 weeks, the others 20 weeks each.

Mr. ———— —Can not the President insist upon chemistry by putting it in as one of the electives? Could he not insist upon it by having a habit of advising pupils to do that, and advising in such a way that they will consider it a good thing to do?

Mr. Upham—Under purpose one, a half dozen experiments are performed in the recitation room by the instructor, and a dozen or fifteen in the laboratory by the student, with some of the fundamental operations in chemical manipulation. The point is this: We all do it I suppose, and every text-book that I ever saw does it. Fifteen or twenty experiments are put in at the very beginning of the book illustrated, before the pupil has had any experiment at all. Is that

pedagogical? Is it the consistent way to do, to set him in the first week or so to deriving general principles?

Mr. Culver—I should like to be sure, before the discussion ends, that we understand each other. I do not follow the method which seems to be indicated by the interpretation you put upon my paper. I do not demand of the student that he shall make generalizations on data that is altogether new to him. The phenomena that pass before him in those few preliminary experiments are phenomena that he is already familiar with, in an indistinct way. I give him in a very brief way a few simple points or principles, by which he may throw this phenomena all into two classes. He passes them in review, throws that part on the one side and this part on the other, making a simple test of phenomena he is already acquainted with. I put upon the table forty or fifty rocks, and ask him to classify them. I say—"There is one particular property which certain of these rocks possess, and others do not. Put them in two piles,—one which shows these characteristics, the other that does not show these characteristics." They only have one idea to think of, and it is not a severe task. I give them practice in that sort of thing, and then add another class of phenomena to classify in the same way. I do not take it as absurd to give a student, as I have suggested, a measure of salt and sand, after I have shown him that the principle of chemical analysis is simply this,—If we have two substances together, treat the mixture with some other that will act upon one of them only, and then ask him to separate them. He is ready to try it. Water will dissolve sugar or salt, but not the sand. He gets an idea of chemical separation. He is getting the fundamentals of chemical analysis in that simple experiment. Then I give him a measure of marble dust, salt, and sand. He can get the salt out as before, but the marble won't come out that way, and he must have recourse to another, which will take out the marble, but won't affect the sand. I don't ask unreasonable things of the student.

Mr. Merrill—I had in mind to ask Mr. Culver some questions. What would be the objection to having the pupil perform these experiments himself? As I understand it you have a half dozen experiments performed in the recitation room by the instructor.

Mr. Culver—That is usually the first day the subject is introduced. I try a few experiments myself, then the student goes to the laboratory, and all subsequent experiments are done by the students themselves.

Mr. Merrill—Do you have your pupils recite daily?

Mr. Culver—Not absolutely so, but practically it amounts to pretty nearly that. If we are working on a group of experiments and do not get through, we go into the laboratory tomorrow, and perhaps two or three days. When the group is finished we come into the recitation room, and perhaps spend two periods on recitation.

Mr. Merrill—Which do you consider more important for the student, the recitation, or the experiment?

Mr. Culver—Without the experiment the recitation would be worthless. I think if I were to weigh the two, I should say the experimental work was perhaps the most valuable, but I can hardly divorce the two. The one is needed for the other.

Mr. ———— —What do you consider to be the main object of the

recitation, to report upon the changes that have taken place in his experimentation?

Mr. Culver—No, that is a minor feature. I want to bring out all that. For instance, suppose they have been having a series of experiments with acids and bases. When they went into the laboratory they knew of acids, and something of bases, but knew nothing from experiments. The experiments have brought out some ideas. They have learned some characteristic things about each. When I have given as much time as I think I can afford, I call a halt on the experimentation, and then in the recitation room I find out how much they have learned about these two classes of substances.

Mr. ———— —Do you consider the conclusions reached upon their experimentation in any way depend upon the reference reading you require them to do?

Mr. Culver—My idea about reference reading is this: It is impossible for the student to perform all experiments, but must rely partly on the records of experiments of others. If I send him to the library before he performs any experiments, they do not mean anything to him.

Mr. ———— —Do you send him to the reference library before recitation upon a line of matters, or after?

Mr. Culver—After, usually.

Mr. Goddard—After a student has worked in the laboratory, as Mr. Culver suggests, he has only been able to work perhaps one or two experiments under each point that you want him to come to understand. Is not this a valuable part of the class-work,—the opportunity it affords to lead the student to amplify and to generalize from these statements? He could not follow out enough experiments to justify any general conclusions. The class-work is an opportunity for me to lead the students to see that that experiment is only one of many experiments which justify a certain general conclusion. I want to perform as many experiments before the class as I can, different from those performed by the student, so as to give a larger basis for conclusion if possible.

Mr. Merrill—If the student performs a certain number of experiments, and they seem to point to a certain conclusion which he would arrive at himself, would it be necessary to perform additional experiments yourself?

Mr. Goddard—If the students always arrive at the proper conclusion, then that won't be necessary, but they do not.

Mr. ———— —If the pupils do not arrive at the conclusions from experiments themselves, do you perform experiments before them?

Mr. ———— —I think you have to do it in chemistry. I do not think you ought to state the conclusions to the students, but your experiment will help them to see its application. When a student performs a single experiment he feels rather a hesitancy about saying that that is a proof of some principle that you want him to get hold of. I want him to do that.

Mr. Upham—My question is this: If you take a text-book there will be fifteen or twenty experiments in the first chapter. They are there to be done, or to read up about. Would you ask him to start right off and either generalize or see a generalization that somebody else makes on experiments which are so numerous they are a maze to him? We

folks do not realize as much as we ought, what a maze there is in the mind of a student; when fifteen or twenty experiments have been performed they are all mixed up. He can't quite remember whether we put this and that together, or this and the other thing together; that this must be heated, this must be wet, and this must be pounded in order to make them combine.

Mr. Ewing—What would be your remedy?

Mr. Upham—Let these generalizations go for six weeks. Go ahead and get to doing something. After about ten chapters go back and then you have the data. There are two phases of work in these sciences,—observation and generalization. You have got to do observation and get data, then go off, sit down and make your generalizations. Pupils can not hold fifteen or twenty-two experiments. Prof. Culver has set down fifteen by the class and seven by the teacher. Is this not a definite principle to go upon,—that as soon as the data including all the experiments that are necessary for establishing the great principles of chemistry have been arrived at, that is the time, not to be deferred, and not to be hastened, for establishing that principle? When the pupil has them in his grasp, to establish, to clinch the thing that the teacher wants him to understand as a definite principle of chemistry, or physics, or biology?

Question—Can you give him enough experiments to justify him in coming to conclusions as original investigators come to conclusions?

Mr. Upham—I think by proper direction you can. It would be folly to attempt to have a student in the laboratory attempt to work out the principles of any science on a system. He must have very definite directions as to what the problem before him may be. State a problem,—and for that matter it may be a very small one; in fact, only a part of a problem,—a problem within a problem,—which has something to do with his solution of a question before his mind. As soon as he has the data for arriving at the solution, that is the time it should be emphasized. It should not be deferred to sum up at the end of the course. Each principle should be established when the data for the demonstration of that principle is ample enough.

Mr. Case—I do not ask my students in chemistry to do all the experiments at the same time. I do not like to have them do it. I have a small enough class so I can get them to work individually. I like to have them perform experiments on the same subject, but I want the pupils to do their work individually.

Mr. Upham—How does anybody in chemistry know how to make oxygen? You either tell him, or give him a written direction on a sheet of paper. Why not all be doing it at once?

This, I understand, is what Mr. Case means by mass work. Not as I see it in primary and intermediate schools,—all marching in at once, all putting slates in desk at once. That is an absurdity I should not care to bring into the laboratory. We may have a certain amount of work assigned to do this day, another amount of work to be done next day. To very close approximation, that work can be done parallel by all students at one time. There may be disadvantages in this plan, but there are also disadvantages in individual work. If there is proper order, there is no occasion for students to communicate in the laboratory if they are working on individual work. There are some experiments in physics where they must work together,

but where there is individual work to be done there is no occasion that there shall be any communication at all. This is not iron-clad, but there should be no communication,—that is, no conference upon the work that they are doing. Each one is doing his own work. The rule is: "Draw the thing as you see it without any reference to anybody else." I move that we reconsider that vote of seven to six.

(Motion seconded.)

——— —I move we re-discuss.

(Motion seconded.)

Mr. Upham—Motion open to the house for a little more discussion.

Mr. Case—As to mass work: this is the plan as outlined in physics: You assign today in physics or chemistry a certain piece of work, or experiment to be performed. The teacher must necessarily have control of the whole laboratory. He stands up before the class and says: "Get to work." They all bring out the same piece of apparatus. They all have a definite time in which to complete the work, write it up, and hand it in. Is that your mass work? That is what I understand by mass work. I want to arrive at a clear conclusion. I say in my laboratory, "We will work on heat until we get done. If the apparatus is in use so you can't do latent heat, then work on specific heat." If you are going to say in mass work, "We will work now on heat." If you do that way, I am right with you.

Mr. Upham—If I could have my way, I would have just as many pieces of apparatus as there are students in the laboratory.

Mr. Case—If you had your way, would you have every student start at the beginning and all do latent heat at the same time?

Mr Upham—Yes, but they won't come out even then. When one gets through, let him go.

Mr. Case—As I understand mass work, you would have them all doing the same experiment at the same time.

Mr. Upham—As near as I could, all doing the same experiment at the same time. I would have every student stop the experiment at as near the same time as possible, so if there are any general directions to be given, you can give them in mass; then all start, and I would move around among them. I never should expect that they would all get through in the same time.

Mr. Case—The ideal of mass work would be,—all start at the same time and stop at the same time. If the average is two hours, would you expect them all to complete it in two hours? Is that mass work?

Mr. Perisho—I would like to explain what I mean by mass work. The discussion arose in this way: I made a statement like this: The student ought to be given a definite problem to perform, and all the class ought to have the same problem. We are discussing the ideal way. All the class in the laboratory should have the same definite problem to perform, and apparatus enough to do it. Then they should go into the laboratory and begin it at the same time. Suppose one gets through it before the hour is over. I always have an extra problem, not compulsory upon the class, but for those students who get through before the regular time. These problems are so assigned that the student will be able to finish them unless he is very slow. If too slow, he would have to come back outside the laboratory hour and finish up. Here is a second point I want to make in that matter: If you put your students into the laboratory and let them do different experiments all the way round, when are you going to give

the specific instruction to the class which must necessarily precede every intelligent piece of laboratory work done by the inexperienced student? And second, if you follow this method, then when are you going to make the summary, and the explanation, and sum it all up? If you are running twenty students, or twelve students, that means that you have got twelve different experiments that must be done; that it will take you six, or eight, or ten days to go through that set; that the student who performs his experiment first will wait a fortnight before the discussion comes up in the final recitation, or a student must wait a week before he does the experiment which has been prepared by the teacher. He will have to wait a fortnight before he can do the work he was prepared to do two weeks before, because he has to wait until fourteen other experiments have been performed, or whatever the number may be. I claim that along with this laboratory work should go the recitation next day, so we may have an opportunity to sum up and talk over the work that was done in the laboratory. It is infinitely better if fresh in the laboratory, than if it is two weeks old.

Mr. Young—The instructor, as an instructor, will not carry a dozen different lines of work as clearly in his mind, with different purposes for instruction in the laboratory, as he will one or two. It seems to me for that reason that it is essential that this work be carried along together. As you say, give your general directions, and then arrive at your conclusions.

Mr. Merrill—I should think this same question would come up with people who teach from a text-book. Here is a class of forty pupils in Latin. Some of them have read two lines, some ten lines. If you are going to have individual work, tomorrow you will assign a lesson which fits on ten lines, and one that fits on fifty. When you come to the recitation the next day, they will be further apart than ever, and so the next day. Finally at the end of the term you will have them like the north and south pole. That principle, if carried out, will lead to confusion. I think the gentlemen who are advocating that do not intend that it should be carried out in this manner. But, nevertheless, that is a system of investigation that goes on in colleges and universities, and it is valuable where a pupil can take a set of notes which he takes from the teacher, and interpret those notes, and apply them any length of time after they have been given. Students in Normal schools and high schools can not do that. They can not carry a line of notes that far. In addition, we teach, all of us, that a recitation is absolutely necessary in order that the subject may be impressed upon the mind of the pupil; that he may be allowed, in the presence of his preparation, and in the presence of the questioning of the teacher, to think for himself. If you have a class of ten or fifteen students, one has done something, another something else, still another something else; there is no common ground whatever for the recitation, and the recitation will either have to be individual, or it will have to be on subjects that have been passed so long ago that the freshness will have disappeared. Why is it not allowable in physics, as well as in biology, or any other subject, to assign two hours' work, for instance, for the average pupil—allow the average pupil to do that work in two hours: those who do it more quickly, do something else, or use the reference books; or, better still, make something, some piece of apparatus originally, and allow those

who are constitutionally slow to come back after the class and do that work over,—that is, finish their work? They may be quick in Latin, or English, but slow in physics. If so, they may prepare their lesson in some other branch in time to come during some study period during the day, and finish up that experiment. Let it be understood that on the next day a test will be had upon the subject assigned for today and every student will be held accountable for the experiment and for the recitation which logically follows.

Mr. Upham—I suppose you all know about that Normal in Colorado where the thing is done on that plan. All students start in the first day togetner, but they are never together again.

Mr. Sage—It seems to me that it ought not to be required by us for ourselves, and that we ought not to encourage anybody else in requiring that we do just alike in this matter. I want to show reasons why it is true. Some are speaking of a class of ten or fifteen. You evidently like the plan of massing, so far as you have explained it. I have at the present time forty-six students all studying sound. The expense of fitting up my laboratories with anything like the duplicate apparatus that would be required to keep those people going, would simply be enormous. Here is an apparatus that measures the length and velocity of sound. What would it cost to reproduce this apparatus? I do not believe in giving to students who are on the average older than college students,—that is what our Normal students are,—little, petty experiments that they know beforehand just what is going to occur, just how it will turn out, and what there is in it. Give them something that taxes them, calls for thought, and gives them a chance to grow. If that is the case we have to be governed in some measure by individual circumstances. I could not possibly think of asking the state to furnish me with conditions to enable me to have students all do the same thing at the same time. When they begin in the laboratory they have a little work in simple measures. There is a simple illustration of where we can do work at the same time. Very soon the work differentiates. Certain students need to be carried along certain lines to get what is best for them. The young man who has taught school eight years, and holds a state certificate, is in the same class with a young girl of seventeen, who can't think from cause to effect in two terms. You can't give these two students the same work and do justice to them. You may put the man upon certain experiments testing the laws of strength, and give him more work than the girl, if he is to do individual work and grow. The girl takes this instrument, and performs very simple experiments suited to her capacity. The individual plan makes all these things possible. It is an enormous expense to the state to begin to duplicate apparatus, to come up to this grade with such things as we ought to use, and have enough so that any considerable number can do it. It may be that some pupils in the class ought not to have that kind of work. I do not require every student to perform that particular experiment,—some are not qualified for doing it. You must differentiate the work. You ought not to set any hard and fast rule for those who are to prescribe things for us to go by.

Question—Would you give the same credit to this man at the end of the course as to the girl?

Mr. Sage—In a certain sense, I do; in another, I do not.

Question—Each counts the same toward the diploma?

Mr. Sage—That is true. If they all do a minimum amount of work, it counts.

Mr. Upham—How many experiments do your best students do in a twenty weeks course in physics?

Mr. Sage—In my course of ten weeks there are ten experiments, besides some preliminary work in which they all work on the mass plan. After that, during the last six weeks of the term, there are ten experiments. The second ten weeks there are nine experiments. That is the minimum amount. Some are asked to do a little more. Some are excused even from that.

Mr. Upham—There is where we all differ. A student may go through your course and do only twenty experiments, while there are others who perhaps have them do one hundred.

Mr. Merrill—Mr. Sage, when do you have those pupils recite?

Mr. Sage—They recite every day for an hour.

Question—Based upon the laboratory work or upon the text-book?

Mr. Sage—On the basis of a syllabus. We discuss the laboratory work as it comes in connection with the subject in the proper place, trying to keep the two as nearly parallel as possible.

Question—Your recitation will include the experiments, and all pupils will have performed those experiments?

Mr. Sage—Sometimes that is not true, but as nearly as we can.

Mr. Young—Would you consider it nearer ideal if each student could have the apparatus?

Mr. Upham—In an ideal condition, as near as we can obtain it, shall we have duplicate apparatus, or shall we not have duplicate apparatus?

Mr. Case—The question is, shall the students all perform the same experiments at the same time as nearly as possible?

Mr. Sage—It seems to me we shall do ourselves a great wrong and those who are looking to us for some discussions,—we shall misrepresent ourselves, if we vote on the question which has this falsity in it. If we vote on this massing plan for our students, this means that the Board of Regents may think it is feasible to do it. We can not have all these things to do the work as we have suggested here. The state would never give us duplicate apparatus to do work on that plan. I do not want to go on record as a science teacher in this state and have the Board undertake to carry out that plan.

Mr. Watson—I want to know if it is simply a question for the physicists.

Mr. Ewing—I move the question be laid upon the table.

Motion seconded. All in favor.

PURPOSE, SCOPE, AND PLAN IN BIOLOGY.

W. H. DUDLEY, Platteville.

I. IN GENERAL.

Purpose:

(a) To give teaching power.

(b) To give teaching material.

Scope:

(a) General Biology (10 weeks), required of all students.

(b) Elementary Botany (10 weeks), required of all students except graduates of 4-years high schools.

(c) Advanced Botany (10 weeks), elective.

(d) Advanced Zoology (30 weeks), elective.

First Year—1st Term, ——; 2nd Term, ——; 3rd Term, ——; 4th Term, ——.

Second Year—1st Term, ——; 2nd Term, General Biology; 3rd Term, Elementary Botany (For all who are not H. S. grads.); 4th Term, Advanced Botany (Elective).

Third Year—1st Term, General Biology (For H. S. grads. who will take adv. Zool.); 2nd Term, Advanced Zoology (Elective); 3rd Term, Advanced Zoology (Elective); 4th Term, Advanced Zoology (Elective).

Fourth Year—1st term, ——; 2nd Term, ——; 3rd Term, ——; 4th Term, ——.

Plan:

(a) Individual Laboratory work (45 min. daily).

1. Clearly defined statement of a problem to be solved.
2. Careful study of the material in hand under proper direction, with the purpose of solving the problem stated.
3. Record of all observations and inferences in permanent note-book, done in ink and not to be changed until first having passed inspection.
4. Drawings of the object studied, done in hard lead pencil (or water-colors at the option of the student) and carefully indexed.

((3) and (4) should be an answer to the problem (1) proposed for investigation.)

(b) Recitations (45 minutes daily).

1. Reports and comparisons of work done in the laboratory.
2. Reports upon assigned topics and readings.
3. Informal talks and discussions concerning related facts and subject matter.
4. Notes to be taken of all new facts or points brought out in the recitation, afterwards to be incorporated with the laboratory work in the permanent note-book.

II. DETAIL OF THE COURSES.

A. GENERAL BIOLOGY.

Purpose:

1. To give power to see, to compare, to infer and to apply.
2. To form a rational basis for the more detailed study of botany and zoology.
3. To give a clear comprehension of the most fundamental and essential laws and principles underlying the life-

activities of all living beings, a knowledge of which should be at the foundation of nature-study,—or Natural History by whatever name,—of human physiology, and should enter into the general culture of every teacher.

4. With (1) and (3) accomplished, to enable teachers to carry on instruction in the limitless realm of Natural History, having sufficient grounding in the fundamentals to take illustrations from the great world of life about them (even though, as is bound to be the case, many of these forms of life have not been made the objects of special previous study), and to use them in a purposeful way; i. e., to aid teachers to rescue nature study from the practice of making it a mere cataloging of things, and a recital of unrelated facts, and raise it to the dignity of the study of life-relations, life-activities and life-sympathies.

Scope:

(a) The study of the following forms of life, and in the order named: Elodia (simply the study of the properties and flow of Chara, protoplasm), Amoeba, Protococcus, Paramoecium or verticella, Faglena, Yeast, Spirogyra, Nitella or Chara, Marchantia, Pandorina, Volvox, Hydra, Obelia, Starfish, Squid or Frog.

(b) With the foregoing types of illustrations the working out of the following rules and principles:

1. The physical basis of life is Protoplasm.
2. The cell is the unit of all organic structures.
3. Differentiation is the setting aside of a certain part of an organism to perform a special function.
4. An organism ranks high or low in the scale of life according to the number of things it can do and do well, i. e., according to its degree of differentiation.
5. Differentiation may be within the cells or among the cells.
6. Every structure in an organism exists for the good of that organism, or its race, and for no other.
7. Differentiation comes from a need in the organism to adapt it more perfectly to the environment in which it is placed (i. e., the great law of relation between structure and function).
8. Simplicity of structure carries with it greater independence of the parts of an organism.
9. A high degree of differentiation carries with it greater interdependence of the parts of an organism.
10. A high degree of differentiation does not necessarily imply greater certainty of success in the struggle for life, but
11. A high degree of differentiation does carry with it a greater certainty of success in life.
12. The greater the specialization the greater the responsibility of each part.

Plan:

"Things known"—That all organisms possess life.

The laboratory work, supplemented by class discussion and

blackboard illustrations, to answer the following two fundamental questions, stated as problems:

1. Is there a substance common to all living things?
2. If there is a substance common to all living things, what are its properties, what various forms does it assume, and how may those various forms be accounted for?

B. ELEMENTARY BOTANY.

Purpose:

To solve as completely as possible the problem of success in life from the standpoint of a phancrogram, i. e., to know a type of the higher plants as a complete organism, living its own life in a natural way.

Scope:

The structure, morphology and physiology of the (a) seed, (b) leaf, (c) stem, (d) root, (e) flower and (f) fruit, taken in the order named.

(This should of course include all morphological modifications of the parts named, great stress being given to the fundamental principle of harmony between structure and function. Illustrations should be introduced from as many types of flowering plants as possible, especially those of greatest economic importance, in order to insure a wide and first-hand acquaintance with them.)

Plan:

The statement at the very beginning of the course of this problem to be solved by the student as a result of his work and study: "What are the elements of success in life?" or, "Getting on in the World," from the standpoint of a flowering plant.

The development of the plan as already stated under (I).

(For a detailed discussion of the elementary botany course see "Manual of the Free High Schools of Wisconsin," 3rd edition.)

C. ADVANCED BOTANY.

Purpose:

(a) To widen and deepen the knowledge of plants and plant economics and to illustrate more fully the laws of relation between structure, environment and function.

(b) To secure a well-stocked reserve fund of knowledge,—vital, related, organized knowledge,—from which to draw for material in nature-study.

Scope:

Comparative studies of as many of the higher forms of plant life as possible, the work to be based upon the Elementary Botany course and to include also some of the more common of the higher cryptograms, such as the fern, equiactum and mosses.

Especial stress to be given to the study of the living plant in its natural environment.

Plan:

1. A statement of the general problem: "What relations do I find between the plants studied, in their general and

in their special organization and form, and their conditions of life, or their environment?"

2. Frequent out-of-door studies of plants in their natural habitats, with a careful record of all observations bearing upon the solution of the general problem.
3. Laboratory work done upon the plants brought from the field to further contribute towards the solution of the problem by more careful and minute study of their structure.
4. Constant reference to and thorough familiarity with the best botanical literature.

D. ADVANCED ZOOLOGY.

Purpose:

a and b. (The same as in advanced botany; but on account of the greater length of the course fuller results can be obtained.)

c. To train the hand to careful, accurate work, free from blunders in manipulation.

d. To stimulate patient, unremitting endeavor; to cultivate the habit of holding tenaciously to a piece of work until it is done, and done well.

e. To secure accurate knowledge of those forms of animal life which bear important relations to the economic interests of man, either beneficial or injurious.

Scope:

The study in the laboratory and, so far as possible, in the field of the structure, the most fundamental homologues, and the life-activities and relations of the following forms of animal life in the order named:

Types for thorough study.	Forms for comparison.
Pigeon	The birds of the state, especially the more important song and game birds.
Turtles	Snakes, lizards and aligators.
Frog	Toads, salamanders.
Perch	Garpike, skate, catfish and eel.
Fresh-water clam	Snails, slugs, squids, oysters.
Grasshopper	The insects of the region, especially those of economic importance.
Crayfish	Lobster, crab, pill-bug, cyclops.
Starfish	Sea urchin, sea-cucumber.
Earthworm	Nereis, leech, trichina, tape-worm.
Hydra	Jelly fish, corals, anemones.
Grantia	Commercial sponges.
Amoeba	"Hay Infusions."
Ending with White Rat for the purpose of summing up and for comparison with all the other types.	The common mammals of the region, and man; besides bringing into the study some of the most important mammals from other lands.

Plan:

1. Thorough study of the type, each day's problem having first been carefully and distinctly stated and understood, together with very definite directions as to method of procedure, in order to obviate needless waste of time, grop-

ing in the dark, mutilation of material, and discouraging failures.

2. Informal talks and discussions and reports, especially in the forms for comparison.
3. Field work, to be done mostly in the last term of the year, and chiefly on the birds and insects.
4. All the points enumerated in "plan" under (I) fully insisted upon.

DISCUSSION—GENERAL.

Mr. McCaskill—It seems to me that one of the important things to be taken up in the first place has reference to the scope of the work. With regard to the purpose I should say that the purpose as set down might just as well be placed at the head of grammar, arithmetic, or music; but this would be doing wrong to Mr. Dudley.

Under the head of scope, in the subject of general biology, there seems to be a great variance in the method of applying that work, and I want to speak especially with regard to the suggestions which Mr. Dudley makes with regard to that course. He has put into the elementary course, a course in general biology with a number of purposes, and work which would require about three fourths of it to be microscopic work. It seems to me,—at least I get the idea from the wording of it,—that this is to be a course which is on the same level with elementary botany, and for practically the same purpose as elementary botany, to acquaint the students with the general facts around him with regard to plant life, and my idea is that the course which was intended by the Board, was to run parallel or cover about the same ground as in the line of biology. To state the question directly, I am opposed to general biology which includes microscopic work. I am opposed to the idea that the students of that grade can solve the problem which Mr. Dudley suggests, in the condition they are in. The first point I make in favor of natural history is that it is the natural order of things,—that the student begins to learn things around him, the things that come in his immediate environment, which he can find out with his eyes and hands. Most of the students who come to our school are able to do that, and they want to use their hands and eyes first, before they take up the microscope.

The following are some of the reasons why I favor a course in natural history for elementary students, rather than a course in elementary biology, such as Prof. Dudley has outlined in his syllabus. By natural history I mean a careful, connected, and scientific study of the forms of life most familiar to the student. Such a course does not contemplate disconnected, haphazard work, without definite aims or method. Such loose work is as liable to occur in connection with microscopic work as in connection with natural history study.

1. The student should learn to use his hands and his eyes in the accurate and careful observation of the life around him, before he is required to take up microscopic work on forms that are absolutely new to him. This follows the natural order, acquainting him first with the things which he daily may see without the assistance of complex apparatus.

2. Such a course, if rightly conducted and rightly pursued, will gain for students of this grade more discipline than a course beginning with a study of microscopic forms.

3. Such a course under the supervision of a careful teacher, with a definite aim in mind, will give more training in accurate and intelligent observation than can be obtained in the other course.

4. This course also has its "problems." Problems of life may be more intelligently investigated in connection with the forms which the student can constantly see and observe, than in connection with those which he sees for a few minutes in the laboratory under unnatural conditions.

5. It furnishes as much "teaching power" and more "teaching material" than the other course.

6. It is more practical for the rural teacher:

1. Because it deals with materials and things coming within her daily experience.

2. It gives a valuable method which she may and can use in her teaching in the rural schools. She can not use the other method.

3. It furnishes her with a number of facts which may be used by her, under conditions in which she must work. She will not have compound microscopes through which she can lead the children to observe the phenomena which Prof. Dudley considers "fundamental to a study of nature."

7. If natural history follows this microscopic work, as Prof. Dudley has indicated, only those who elect the full course in zoology will be able to get this elementary training in the study of the common forms around them.

8. Students in the elementary course in our Normal schools are not sufficiently trained, or mature enough, to intelligently solve many of the problems given in the syllabus submitted by Prof. Dudley. In fact, it is absolutely impossible for students in any grade within the limits of ten weeks, or even forty weeks, to solve or "work out" the problems which he suggests for these elementary students to solve within the space of ten weeks.

See (b), paragraphs 4, 5, 6, 10, and 11.

My objection is, as you see, that this work is too advanced and calls for too much generalization for pupils who have had no more training in scientific work than these people have.

Mr. Fling—I agree with Mr. McCaskill as far as he has gone. I was somewhat surprised in getting Mr. Dudley's paper to find that he had this course suggested in the elementary course,—taking up these microscopic forms. When this course was suggested by the Board of Regents, my president informed me that it would be a course of ten weeks, one hour a day, no laboratory work. It is practically the old natural history. I was informed that I would be allowed my one hour a day,—a course related to natural history. I asked if it would not be a good idea to do some laboratory experiments, to have the students see what laboratory methods meant. There was no objection to that at all. On that basis I was all at sea. I supposed it meant nature-study work. I had only one, and have now only one hour to cover that work. Again, the statement was made to me that this elementary biology was to take the place of elementary botany,—either elementary botany, or elementary biology, not both, as Mr. Dudley has in his course. The students who come to

this school take elementary biology, which is practically book work, with a little laboratory work, enough to amount to nothing at all. Supplement that by botany work, which does offer five days' laboratory work a week,—five two-hour periods a week. I disagree entirely about this being put into the elementary course of study. I believe this course does belong before the zoology and before the botany. Give them a course of biology and follow that out with zoology and botany. He has thirty weeks of zoology following this. Work him up to it, then take that thirty weeks, following the ten weeks you give of this.

Another point on that. Students who take that work with me do not get any further, because all my work is elective, and they do not go into my work after taking that. They take that work, get as little of it as possible, and get out of it.

Mr. Watson—Seems to me this whole thing is a little broader than this one course in natural history. It resolves itself down to what the purpose is. If our biology work is intended to give discipline that specially fits the individual to go out and labor in the schools of the state, that is one thing. If it is intended to give the best discipline possible to pursue the work in the university, that is another thing. If I were shaping the courses in the Normal schools so as to fit the students to take up the work in the university, and go on with biology work, I should commence just where Mr. Dudley does. If I were shaping the course that is going to give the best discipline that can be obtained, with the thought of making it utilizable for the teacher in rural school work later, I should not put the students at work first upon the compound microscope, with the most difficult problems of biological science. If our purpose is to help the teachers in country school work, then I believe that some general work upon the forms at hand, the forms with which she herself, and with which the pupils are somewhat familiar, will be helpful, will serve as a basis for nature study, and will come into play at various stages along the course, and will also have a value later in science work that follows, both in biology and botany. The third purpose is to give a clear comprehension of the fundamentals, of the essential rules and principles. I believe in the first two points he makes thoroughly. If he is going to take work in biology, it is essential to have a knowledge of those things which should be at the foundation of nature study. I contend that a knowledge of the structure of soils, and the properties of protoplasms are not the foundation of nature study, and as I suggested before, are too far ahead of the student at this stage. I would like to ask, and I think that this ought to come in here, with regard to just exactly the kind of courses that are offered in the different schools. I would like to ask the biology teachers to say what is given in this course.

Mr. Ewing—In the River Falls school the course is the minimum required by the Board,—ten weeks of botany required, and ten weeks elective. No biology required, and twenty weeks elective.

Mr. Watson—We do about the same as they do at River Falls, with the exception that we have an additional course in the elementary course, that offers nature study, the studying of plants of the larger types, trees particularly, birds, and insects. We follow the general lines of nature-study work in addition to the ten weeks of required botany in the elementary course, and in the advanced work we have the biology, physiology, and botany.

Mr. ———— —I use Burnett, and all the material I can get hold of. I have three or four laboratory exercises, and all the rest recitation and illustrative matter,—everything I can get.

Mr. Mitchell—We haven't the elementary conrse, so I can not speak from that standpoint.

Mr. McCaskill—I have a study of birds and insects.

Mr. Young—We give a straight year in what we term biology. The first twenty weeks is zoology, and the second twenty weeks botany, and ten of each of these is required for students taking the elementary course. That is about all the work that I give in the biology department. Mr. Merrill gives them an advanced course of ten weeks in biology, and an advanced course of ten weeks in botany.

Mr. Watson—What do you do for the required work in botany?

Mr. Young—We don't take it as a separate thing at all. We take twenty weeks of zoology first, and then twenty weeks of botany. Ten weeks of each is required for the elementary course.

Mr. Watson—In that ten weeks, do you require microscopic work?

Mr. Young. No, we do not. We have taken up the plan adopted by a great many university men, of beginning with the insects, and working the insects thoroughly, including under the head of insects the first ten weeks, and that covers the work for the elementary students from several points of view,—from the standpoint of anatomy, the standpoint of physiology, a study of the life histories, and the economic side to some extent in the physiology work. I would add that of course we believe in this, or we would not pursue it in this way. We begin with the amoeba, the lowest form ,and work up.

Mr. ———— —This idea of beginning with the amoeba, as I understand it, has been practically abandoned in our section of the country. Prof. Carleton, in the state Normal at Normal, Ill., has even gone so far as to object to microscopic work of any kind in the elementary course in biology or botany in the Normal school.

Mr. ———— —I most heartily agree with him. It does not seem to me that this is the course appropriate for the elementary schools. I also agree with him in his objection to the use of the compound microscope as a regular feature of work. The only point I think in which I would diverge from his objections, would perhaps be in striking out the work in biology altogether, and really this is the fundamental line of work in that course, to be followed in the next two years of professional work, and the fundamental line of work would be botany, and not biology. There is no reason for giving biology as such, except that biology as such involves all of the principles of botany and zoology. Is not that true? It is technically and theoretically a foundation for future work in either of those sciences, therefore either of those sciences comprehends in itself all, or practically all, of the faundamental principles that you teach in your work in biology. Therefore in the line of condensation of work, it seems to me that everything could be involved that it is desired to involve in the study of one fundamental line of work that shall commence at the beginning of the elementary course and find its completion at the end of the professional course. Then you have a line along which you can plow, and plow deep, and to which you can correlate all of the rest of your natural history work, and which will involve all of your biology principles. This is practically the only line in which I would depart from Prof. McCaskill in his objection.

A GENERAL REPLY.

Mr. Dudley—I want to state at the outset, that of course I recognize very clearly that there will be nobody perhaps in the biology fraternity, who will endorse what I have to say here. As I understood it from the directions that were given us by the State Superintendent, this outline would be merely a statement of work being done in each school. I asked him that personally, and he told me that was so, hence I didn't go into any discussion whatever of the pros and cons in any way attempting to explain or defend the course. In short, I did not attempt to give the reasons why in any case whatever. I have simply stated how I have been giving the work in biology in the Platteville Normal school, what is being done, and the general purpose underlying that work, and also the plan of doing the work. I supposed that each one who had these papers to prepare, would have the opportunity at the very outset before any discussion was entered upon, to state his case more clearly, of giving the argument for the faith within him. Of course it started off in a different way this afternoon and I let it go at that. I find the other papers were more of an argument than this. At the outset I want to say one thing: It may seem as a criticism on some who have made objections to this course. Consistency is a jewel. We have voted here, all excepting one, at the very outset of this afternoon's work, that the main thing in physics is to give discipline. Shall we leave that work out of this, and say that the main object of biology in the Normal schools is not to give discipline? If the main purpose of the biology in the Normal schools is to give discipline, which I judge it to be, just as I hold it the main purpose of physics, chemistry, or any science whatever that is given, is fundamentally disciplinary power, then I repeat, let us be consistent. If we are going to give but a very short time of the twenty weeks, or whatever number it may be, at our disposal, to each of the grand divisions of biology, as you just illustrated by giving a certain amount of time to each of the grand five divisions of physics, then that fundamental purpose of discipline must be thrown out of the biology. If the main purpose of the biology work in the Normal schools is to give discipline, then I say in all fairness that you can not cover the whole line of animal life, the whole line of plant life, and get anything that will result in discipline from it. You may get a certain amount of unrelated information. I simply want to go over a few points here, and state the things just as they are, and the reason why the course has been given as I have done it.

In the first place, when I went into the Normal school down there, there was a course in the catalog of which I knew nothing of its content,—biology. It simply said biology, and by biology I understood as intended general biology as it is outlined here. Consequently I gave that course. I continued to give that course for three years. A year ago in August this new rule of the Board was passed, in which there was comprehended an elementary nature course really not to conflict with the elementary course in botany, that had always been given, that is required of everybody in the institution. The question came up between our president and myself, whether, in view of the action of the Board the general biology course that I had been giving would have to be given up. I want to state one or two things in connection

with that, which I do not state in any sense except to simply lay the matter before this company. That general biology course was required in the English Scientific course, and no other, and in the first year few took it. In succeeding years the class grew larger. It was found that that course was valuable to all students, and by the time this year arrived the majority of the students of the course were taking the general biology, and the president, at his own initiative, said that to make this more unform, he would require it of all.

Now to go back to the question of a moment ago. The question arose whether that should be thrown out,—that general biology course,—and what the Board intended. I have talked with a good many of the Board. Mr. Emery came down and visited the general biology course, and we were talking about protoplasm. He said—"Here, is this the course that the Board intended you should be giving?" I said,—"No sir, it is not the course that the Board intended should be given. It is the course that was in the catalog when I came here, and when this new outline of the course of study was instituted, we decided it should be continued just as it had been given." And then and there for an hour and a half we talked it over, and Mr. Emery, who was instrumental in putting in that course, was convinced that this course in general biology was of great value to the elementary students.

Now I would like to take up a few of the points that have been mentioned by Mr. McCaskill, and would it be imposing upon you, Mr. McCaskill, if I take those notes from which you read? I would like to anwser almost every objection. In the first place let me reiterate one thing. I do not thing it is wise in any subject, as you have all voted upon in regard to physics, to try to spread oneself over the whole line of the subject considered. There is just one little thing here I want to read, a criticism of Jackman's Nature Study, a book which I think is doing as much harm as anything can do.

(Quotation omitted by stenographer.)

I hold that if a teacher in our Normal schools goes out with that notion, that he has learned so much about nature that he can teach anything that comes before him in his school without any danger of making a mistake, if he has such a self-satisfied idea, especially to those students who come in from the high school, having had physics there, he will actually do harm, and I think the nature work that is being done in the common schools today is actually harmful. It is doing no good whatever. I do not mean to say all of it, but the majority of nature-study, so termed, is a direct violation of every good and sound pedagogical principle. Now if it is well worth while for a student in our courses in physics, or a student in our courses in chemistry to understand and work out experimentally, and arrive at very concrete conclusions, and certain chemical, or certain physical principles, why is it not so in biology? Why should we say that a thing is too difficult in biology, when it is not too difficult in physics or in chemistry? Let us be consistent.

I propose to take this outline syllabus and expand it. I have said I did not attempt anything of that kind, but simply stated what I was doing and made no attempt to back up the statement of what I was doing with any reasons pro or con. I would like to say this at the outset, as a fundamental proposition which I should want to think everybody would agree to, that biology as a science has the right to be put

on just as firm and broad a basis as physics, or chemistry, or any other science. It is very true that biology is, as compared with physics, as a study in schools, in its infancy. It has not the history behind it, that development from a chaotic condition to a definite scientific work, which we know to be true of physics. And so even to day, just as we have already seen, there are very diverse notions of what is to be done, and how that "what" is to be accomplished. It was agreed here yesterday that the work in physics should commence with fundamentals, and should have a scope brief enough so that certain fundamental principles can be established. You will remember that the report of Mr. Sage showed there were about 19 experiments to be done in his elementary course during a period of twenty weeks. That was in contrast to what one gentleman here suggested, of trying to cover the entire field of physics, all five subjects. Now there are the two methods put in contrast with each other. I want to reiterate that it was voted here yesterday by a majority of 11 to 1, that the general information method in physics should be abolished, and that the working out of a very comparatively small scope was the true method. Now that in the first place is exactly the thing that I want to have accomplished in biology,—to do a little, and have that little directed toward the solution of certain well defined principles of life. Now I contradict the statement that those principles as I have enumerated them in this paper, are at all difficult of comprehension. They are principles which are more or less comprehended even before a student has entered the class in biology, in a general sort of a way. They do constitute part of his stock of information, to a large degree. And so I want to call attention just a moment to this outline. There is one correction here; I find that some have made a little mistake in reading it over; the paper treats of biology as a whole, of course including botany and zoology, and whatever may legitimately come under the study of life problems. It is true I have included here the study of human physiology, and that is treated in another paper in the same meeting, and out of that biology as a whole I have treated three sub-heads, the purpose, scope, and plan of them. Then after treating the whole general field of biology, I have gone on here to detail the courses, and under that general biology, and by general biology I thought everybody would understand distinctly that I mean the ten weeks course which is the only thing we are discussing here at all. No discussion whatever has been had about advanced biology or zoology. And then under that general biology I have this set down as the purpose, please note, of that specific course, these four points: First,—To give power to see, to compare, to infer, and to apply. Second,—To form a rational basis for the more detailed study of botany and zoology. In other words, an introductory course to advanced work, not at all an introductory course to the university course. I have no such intent whatever. The purpose is to give teaching power, and teaching material. It has no reference to the university course at all,—that is not comprehended in this paper. Third,—To give a clear comprehension of the most fundamental laws and principles underlying the life-activities of all living beings, a knowledge of which should be at the foundation of nature study, or natural history of whatever name,—of human physiology, and should enter into the general culture of every teacher. And Fourth, with one and three accomplished, —To enable teachers to carry on instruction in the limitless realm of

natural history, having sufficient grounding in the fundamentals to take illustrations from the great world of life about them, even though, as is bound to be the case, many of these forms of life have not been the objects of special previous study, and to use them in a purposeful way, i. e., to aid teachers to rescue nature study from the practice of making it a mere cataloging of things and a recital of unrelated facts, and raise it to the dignity of the study of life-relations, life-activities, and life-sympathies.

That was the purpose of this general biology course. If I found that I were not accomplishing this purpose, I should never give it. I refer the biology fraternity here to those four points, and I claim that those four points are accomplished by this sort of a course, by this material and this method of work.

I will now take up some of those objections made by Mr. McCaskill.

The objections made were as follows, and I will answer them in succession: "The reasons why I favor a course in natural history for elementary students rather than a course in "General Biology," such as Professor Dudley has outlined in his syllabus. By natural history I mean a careful, connected and scientific study of the forms of life most familiar to the student. Such a course does not contemplate disconnected, haphazard work without definite aim or method. Such loose work is as liable to occur in connection with microscopic work as in connection with natural history study." (McCaskill.)

It is difficult to discuss Mr. McCaskill's objections with absolute fairness, because in nothing that he has said or written (and the same thing may be said of those who hold similar views with him) has he indicated clearly just what his natural history course would consist of. In general it should be clearly understood that the course in "General Biology" is not recommended because it involves the study of microscopic forms, as though the use of the microscope in itself were a desirable thing; but for the indisputable fact that the course indicated, by developing and establishing the most fundamental and essential laws and principles of all living things puts the student in the right attitude of mind, gives him the correct point of approach for all studies of a like nature which he may afterwards undertake. It has not been shown in the above (because none of the forms of life have been specified) that a "careful, connected, scientific study of the forms of life most familiar to the student" could be made. Unless rigid censorship were exercised (thus eliminating many of the "familiar forms" and adding others that would certainly not be familiar, the result of which would be a limited series of the higher, more complex forms of life instead of the simpler ones) it would be bound to consist of a mere cataloging of the names, habits and "items of interest" of a number of animals which happened to be seen or collected, which certainly would not be connected, and would not be scientific.

1. "The student should learn to use his hands and his eyes in the accurate and careful observation of the life around him before he is required to take up microscopic work on forms that are absolutely new to him. This follows the natural order, acquainting him first with the things he daily may see without the assistance of complex apparatus." (McCaskill.)

In the list of types suggested in the syllabus for use in the "General Biology" course seventeen distinct forms (not counting Elodia) are named. It is doubtful whether another list of seventeen could be

named containing more forms of life which, so far as the student is concerned, are immediately "around him." Para, moecium, vorticella, protococcus, bacteria (inadvertantly left out of the list), yeast, spirogyra, marchantia, hydra, and frog may be found on every hand, not a few of them in close and disagreeable relation to man, affecting his interests. The fact that with many of them—although they are so near at hand,—the student may not have a "speaking acquaintance" may serve in the predetermined scheme of instruction as an advantage rather than a disadvantage, for then previously formed errors will not have to be corrected. It is held by the writer of the syllabus, moreover, that it is a much more sound pedagogical principle to acquaint a student with those forms of life which are the simplest and have the most intimate relation,—(i. e., that will illustrate most clearly)—to the particular principles of living things which he, the teacher, is endeavoring to establish and emphasize, rather than to use forms simply because he, the student, "daily may see them." It is far from evident that the latter is "the natural order." It must not be assumed at once that such a procedure would be in conformity with the maxim "Proceed from the known to the unknown." To spend all one's time in the study of certain forms of life simply because they happen to be "known" in a superficial way will lead to no conclusion, and will be much less the "natural order" than the study of forms, "known" or "unknown," which have definite bearing upon a well wrought-out plan of work which the teacher wishes to accomplish. The latter, from the standpoint of good pedagogy, is the "natural order." Here again, it must be admitted, in justice to Mr. McCaskill, that no definite formulation of a substitute has been offered, and as in all cases where general sweeping plans are set up against specific ones, allowance must be made for what might be worked out by the one who advances the general conception. The chief claim here made is that the exact course outlined accomplishes the ends specified.

2. "Such a course if rightly conducted and rightly pursued, will gain for the student of this grade more discipline than a course beginning with a study of microscopic forms." (McCaskill.)

As the above propositions is entirely unsupported by data or reasons of any sort nothing can be said except to admit that the author of it thinks so.

3. "Such a course under the supervision of a careful teacher with a definite aim in mind, will give more training in accurate and intelligent observation that can be obtained in the other course." (McCaskill.)

The above is but a paraphrasing of the previous proposition (No. 2.) and so has the same weight. If one might learn distinctly just what the "definite aim in mind" is or might be, it would be much easier to make a comparison between it and the one outlined in the syllabus.

4. "This course also has its problems. Problems of life may be more intelligently investigated in connection with the forms which the student can constantly see and observe than in connection with those which he sees for a few minutes in the laboratory under unnatural conditions." (McCaskill.)

Here again, for lack of definiteness little can be said concerning the proposed substitution. However, every teacher of science knows—and and is it not universally true?—that no hard, consecutive, systematic study leading to the solution of any problem is ever done except it be

undertaken at a definite time and in a definite place? It is to the "few minutes" devoted to work in the laboratory (not, however, under unnatural conditions, but far more natural conditions than usually exist for the study of museum specimens of birds and other "familiar forms") that we must look for results rather than to the "constant observation" of forms constantly about the student.

5. "It furnishes as much "teaching power" and more "teaching material" than the other course." (McCaskill.)

If Mr. McCaskill had read carefully the "purpose" of the course in "general biology" as outlined he would have seen that no claim was made that the teacher would be furnished with material for use in his own school. And for answer to objections (5) and (6) the "purpose" referred to above is explicit.

6. "It is more practical for the rural teacher:

(1) Because it deals with material and things coming within the daily experience of the teacher.

(2) It gives a valuable method which she may use in her teaching. She can not use the other in the rural schools.

(3) It furnishes facts that may be used under conditions in which she must work. She will not have compound microscopes in her work, nor can profitably use for her children the facts learned in such study." (McCaskill.)

The most fundamental unreserved claim made for the course in "general biology" is that it does give the right method of work. And having clearly establishel the right point of view and point of departure "facts" and "material" in greater abundance than they can be used, will be obtained with the least trouble of all. It is a question of what is the correct way to introduce a teacher to the study of life and living forms, and not a question between utility and non-utility.

7. "If natural history follows this microscopic work as Prof. Dudley has indicated, only those who elect the full course in zoology will be able to get this elementary training in the study of the common forms around them." (McCaskill.)

In the course as indicated, every student is required to take botany in addition to the general biology. It is not a question of election. To say that some of the other schools have a total of but ten weeks to devote to one or the other,—elementary botany or elementary zoology, —does not argue against the course outlined as being the ideal course. True, the advanced zoology is elective, but the elementary students,—even those who object to the course in "general biology",—may "elect" elementary botany instead of elementary zoology, (or "natural history" so-called). Mr. McCaskill makes no mention of them and of how they are equipped, lacking as they must the "natural history."

8. "Students in the elementary course in our Normal schools are not sufficiently trained or mature enough to intelligently solve many of the problems given in the syllabus. In fact it is absolutely impossible for the students in any grade within the limit of ten weeks or even forty weeks to solve or "work out" the problems which he suggests for these elementary students to solve within the space of ten weeks. See (b) page 3. Especial attention is called to paragraphs 4, 5, 6, 10, and 11." (McCaskill.)

The most convincing reply to the above sweeping objection is found in the fact that what is indicated in (b) of the syllabus is accom-

plished and has been accomplished in the space of ten weeks during the past four years on an average of three times each year. Moreover, paragraphs 1 to 12 are not "problems" as the above objection would indicate that the writer, Mr. McCaskill, supposes, but general principles of biology which are so easy of comprehension as to be entirely within the mental possibilities of the average student in the second year of our Normal schools,—students of an average age of at least twenty years.

I must believe that had Mr. McCaskill investigated more carefully into the real content and significance of it, he would not so readily have fallen into the error of branding as "too difficult" a course which, to say the least, he has not tried with his own students and hence of whose difficulty or simplicity he was forced to judge from an outline destitute of all explanation or qualification. It is the purpose of the writer of the syllabus to expand the portion on "general biology" into a paper in which the points that have caused the critics most trouble will be gone into at length, with the hope that all difficult places may be made plain.

It should be added that the writer of the syllabus is making no contention whatever for either the study of microscopic forms on account of their requiring the microscope, or for the particular list of organisms suggested per se, but for the illustration and the establishment of the general and essential principles of living things. That is considered to be as fundamental in biology as it is in physics or chemistry or any science worthy of the name. If the development of those fundamental principles can be accomplished by the use of the more complex forms of life instead of the simple ones, and without the aid of the microscope, well and good. The microscope is always to be regarded as merely an assistant, and never as an instrument whose use is desirable in itself. The only claim is that in order to reach the end sought (the establishment of principles) the types suggested and the methods employed have by actual experience yielded the best result.

THE PURPOSES, SCOPE AND PLAN IN TEACHING PHYSIOLOGY IN OUR NORMAL SCHOOL.

A. L. Ewing, River Falls.

Purpose.

I. An important purpose in teaching physiology in a Normal school is that the student shall gain such a knowledge of the human body and its hygienic surroundings as will enable him to understand hygienic conditions in and about his schoolroom and hence provide for the physiological welfare of the children under his charge.

II. Another purpose in teaching physiology is to provide efficient teachers of the subject for the public schools; with the same end in view as before, viz.: the healthfulness of the children throughout the commonwealth.

III. Again physiology should be taught in our schools for its educational value. This, though perhaps secondary to the hygienic value,

is by no means low. As the subject is of such a nature that it may be taught to quite an extent objectively, and occurring at a time when the student's work is largely literary, it is frequently a means of awakening in the young mind new lines of thought, new animation and larger aspirations. It certainly helps the student to a better understanding of what he is. All of this adds to his intellectual power and makes him a more efficient teacher.

IV. Physiology also forms a basis for other studies, as zoology, psychology, and pedagogy.

Scope.

Physiology in a Normal school should embrace a study of the gross anatomy, physiology, and hygiene of the various organs and tissues of the body. It should also include a study of the microscopic structure of certain of the more important tissues, as bone, tooth, skin, lung, kidney, blood, liver, intestine, spinal-cord, nerve-cell, and nerve-fiber.

The subject should include the study of respiration, its chemistry and mechanics; foods, their nature, composition and classification, bodily-energy, its source and nature; and something of the nature of light and sound.

The subject of school-hygiene, as ventilation, schoolroom lighting, posture of the body, sanitary conditions, etc,, should receive careful attention.

Plan.

Preparation for the daily physiology lesson is made by study of the text and reference books, supplemented by laboratory study under the supervision of a teacher.

The laboratory exercises occur on an average of twice a week and consist of a study of the various tissues and organs including bones and the human skeleton; dissections, experimental tests, as of digestion, strength of muscle, mechanics of respiration, study of models, charts, and of microscopic slides—enumerated above.

Notes are taken and sketches made of these laboratory observations.

The hygienic importance of physiology makes it seem necessary to teach the subject out of its normal place, at the end of the science instruction. Hence the immaturity of the students in the elementary course precludes doing work with the thoroughness and efficiency desired. It seems to me to be the purpose of the advanced physiology to secure this desideratum by more complete work along similar lines; both in laboratory and class-room discusions.

All along the physiology should be so co-ordinated with the physical training that the two may reinforce each other.

DISCUSSION—GENERAL.

Mr. Ewing—It seems to me that that is the line of work in physiology that is the important one, and we have heard a great deal about certain defects along the line of geography, etc.; but in the hygienic results of physiology it seems to me that the burden is even more than along any other line. There is no department of education that needs reinforcement, and needs in some way to produce a better state of health, of physical condition, so much as in this one. Physiology

is the only study, practically, that deals very extensively with this, and the other branch as I have intimated here,—physical training. In regard to the advanced physiology, it seems to me unwise to attempt to do much of anything about that any more than a brief suggestion, because the fact is, it never has materialized in our school. Our classes are not large, and no one has asked for it, and it has seemed unwise to encourage a further division along this elective line of science work. Hence we have preferred they should elect zoology, for instance, rather than the physiology, and it has not seemed desirable to divide work further along this line.

Mr. Upham—You have only ten weeks, then?

Mr Ewing—That is practically all we have in physiology.

Mr Upham—I would like to ask, in that laboratory work that comes twice a week, is it done during the class period, or is there an extra period?

Mr. Ewing—There is an extra period.

Mr. Upham—Is it regular?

Mr. Ewing—On an average twice, and more frequently sometimes, and less frequently sometimes. It is usually feasible to arrange to have all of our class in science at the laboratory at one period a day when there is a teacher, and almost invariably the teacher who hears the recitation is at liberty then; or they come in groups, sometimes a dozen, sometimes more, sometime less. At some portions of the instruction that is not required, although they frequently come there in various lines of science to even study the text-book, and reference books of course. The program is always arranged so there is either one or the other of the two teachers at liberty, or else the laboratory is closed. It has happened that there may be one or two students in one of these closed periods, but that is avoided very largely.

Mr. McCaskill.—I would like to ask whether in the course in physiology you have any arrangement for those students who seem to be unprepared to go into this ten weeks course in physiology?

Mr. Ewing—Not at present. We have had that arrangement, and it is a good thing, and I can not see why it was abandoned unless to facilitate having less classes.

Mr. McCaskill—In our school, sometimes by simply talking with a student I am able to find out that he is not ready to enter what we call the Normal physiology; then I put him into a class in elementary physiology, or a class in hygiene. And this question has come up a good many times, and I would like to open it up right here, with regard to the question of how our hygiene can be given to that grade of students who are not able to enter the Normal physiology class. How much hygiene can be given them, with anatomy as a basis for it? How much hygiene shall we try to give them, and what relation has anatomy to the hygiene for these people? Can you give that hygiene without anatomy?

Mr. Ewing—Back of that there is a question. There is something in educational journals about a person taking care of himself by knowing something about it. It is absurd to ask the question in case of the physiology. I should like to raise that whole question,—how much does it aid the student in taking care of himself to take the course in physiology? I should like to have someone who has taught

physiology within the last seven years, give some definite opinion upon that.

Mr. Upham—Please discuss for a few moments, the purpose of the physiology in the Normal school.

Mr. McCaskill—I think the question can be answered all right. If the work that is done by the teacher in physiology is followed up by the teacher in hygienics, it gives better results. It impresses daily the need for doing certain things, and not doing certain things because of certain effects upon the students. The fact that the student can appreciate the why will have some influence on his conduct. I know with very young children we have to teach them a good many things they must do so and so, and must not, without explaining those things; but when we get to that grade and look forward to teaching, they ought to have some intelligent view at the bottom of this conduct they are asked to pursue.

Mr. Dudley—I think, as Mr. Ewing has said, in a great many cases the instruction that Normal students get in physiology brings them individually very little benefit. They are to a certain extent mature,—their habits are formed. As the old adage goes, "It is hard to teach an old dog new tricks." And yet, although it may in their own individual practice be of very little value to them,—that is, in helping them, as Mr. Ewing expressed it, to obey these hygienic laws more nearly,—if they do understand them, and are forced to teach them in their own schools, which are also likely to be schools of much lower grade, and teach these things systematically to young children, it is of use; the children will at least form habits which are correct. Although, as I have said, those who come into the Normal school and get a very brief course in physiology and hygiene are not affected in their own lives, they may give intelligent instruction to the pupils that come under their instruction. And of course the time may come when the practice will be what we suppose to be the aim.

Mr. Upham—Your purpose in physiology is to teach teachers to teach hygiene?

Mr. Dudley—Yes. And he may teach hygiene without practicing it. From the very nature he may understand certain laws which he is more or less likely to neglect in his own life because of habits formed that ten weeks' instruction will not overcome.

Mr. Fling—Perhaps we preach a great many things we do not do. We give at our school twenty weeks, or ten weeks of required physiology, and ten weeks are required before they come in, so we really get twenty weeks. Then after they have had twenty weeks, they can have twenty more, or ten more, as they see fit; they can elect ten weeks, or twenty weeks more. All students coming into the school can get forty weeks of physiology,—really a whole year. The work of hygiene we take up first. The first ten weeks students who have not been admitted to the normal, but are in the preparatory department, or doing part of their work in the Normal school, take ten weeks of anatomy, given by Prof. Goddard, and wherever the subject of hygiene or the effect of narcotics upon the system can be brought up to good advantage in connection with the subject we are talking about, these things are discussed. After they have passed through these ten weeks of anatomy, the next ten weeks, called hygiene in the course, really deal with function, and work is based on the anatomy. Students who come from the high schools have credit for that anat-

omy, and sometimes for hygiene, if they come from a four years' school. Hygiene is taken up in the same way in this second ten weeks. We try to place before the student the proper way of living, and the care of himself as near as such things can be brought to the class. The ten or twenty weeks taken after that, elective work, has been mostly, I should say seventy per cent., of students who have not had either the anatomy or hygiene in the school. This quarter I have a class in advanced physiology of sixteen students, and only one of the sixteen I have ever seen before in my classroom physiology. They are mostly high school graduates, and people who have taught physiology in the country schools,—or in some cases in the high schools, the smaller ones of the state. I have no fault to find with the paper at all. I agree with Prof. Ewing almost entirely in the paper. Perhaps our method of handling the subject and material differs. We might give a little more of some things than he gives, or perhaps less in some places.

Mr. Goddard—Just one thing about which you might get a wrong impression. The work in anatomy is rather a division than the work that is given. We deal with the anatomy first as a basis for the knowledge of hygiene, as suggested by Mr. McCaskill, the function of the different structures, and then the hygiene follows right after the work in anatomy. That is to say, we try to apply the anatomy to the hygiene as we take up each subject rather than dealing with anatomy for the ten weeks, and then try to apply that to the hygiene during the next ten weeks. I am in perfect accord with Mr. Ewing's paper. The justification for the physiology work comes through the hygiene. I do not think it ought to be put in the senior year. There is justification for much work being done in the early part of our course, and for the principal reason of giving these students an intelligent basis for hygienic truths known before, but which they have not an intelligent understanding of.

Mr. Upham—I wish a few people would talk on the scope of physiology for two or three minutes.

Mr. Sage—We take Martin's Human Body, Briefer Course, and in the ten weeks we have for it cover a goodly portion of it. It has to be done less completely than it ought to be done,—certain parts are omitted, and much of the detail left out. We have no arrangements for laboratory work whatever, so far as that department is concerned. We have specimens, and when we can, we get possession of a microscope, and we have slides. We have a good assortment of models, and such things as that. We help out the hygiene by reference to other books. That seems to be the definite part of it; hygiene is the thing we are after, at least an intelligent basis for that.

Mr. McCaskill—In the first work we have in the hygiene course, we take up the study of anatomy. In that course we use Stowell's "Essentials of Health" as the basis, and following out my idea as Prof. Goddard gives it, some anatomy and some physiology and hygiene, on the theory that we can not do good work without a basis for it. In the next course, Blaisdell, and Martin as reference. There is a good deal of laboratory work in that. The advanced course, third quarter of the year, takes up circulation, digestion, and respiration. Two thirds of that work is laboratory work. We take part of the class at a time, in a one-hour exercise. We give two full hours for the work in advanced physiology.

Mr. Dudley—How much of the elementary course has laboratory work?

Mr. McCaskill—There is no laboratory work in the hygiene course. It is text-book work, and some demonstration work by the teacher. The use of text-books and reference books on special topics, such as eating, exercise, the eyes. The student in hygiene can learn a great deal with regard to the use of the eyes, eating, and over-eating, and exercise, while in school. If he never teaches it, it is worth all the time he puts in.

Mr. Jegi—We have but ten weeks for physiology, and call it the advanced course. We seldom have students who have not had high school physiology. In the past five years there have been probably two who have got through a high school and have escaped physiology. Usually they have had twenty or thirty weeks before they got through the high school. While this matter of hygiene is important, and we give it some attention, I try to give them the fundamental laws of life,—a course in my judgment which should not be put into the first year. It depends more or less upon chemistry, upon physics, and biology. We attempt to cover in that way as much as we can. I do not know that you care to have me enumerate the topics we take up. We do the work of Martin's larger book, supplementing with Kirk, Richter, etc. We do not cover the whole subject of physiology at all, but certain broad topics, as Mr. McCaskill has mentioned, with one or two others. It is a very different sort of course from the others.

Mr. Upham—How much laboratory work do you do?

Mr. Jegi—No work in class. We have, however, a large number of slides, and the students are asked to make certain drawings at their free hours. Perhaps on the average they would make about thirty drawings of different kinds during the course, sometimes forty. I have no laboratory period, as such, but have outside work.

—— —I believe this hygiene is very important. I liked very much what Mr. Ewing said about the relation to physical culture. We all teach hygiene without very much attention to physiology. Most people who know a great deal of hygiene, do not know much about physiology. I do not believe it is necessary to know so very much anatomy to know some common-sense hygiene. We ought to teach that somewhere, the earlier the better. Teach them the right habits. Teach them to have in mind constantly that the child physically is a fact that they must consider. If they know just enough common-sense hygiene, which does not necessarily depend upon physiology, it will do the children very much more good than anatomy. I believe the physiology ought to be done perhaps very largely with the department of physical culture. I should call this paper hygiene, rather than physiology, from its scope, as I see it.

Mr. Ewing—I have little to say further. It seems to me Mr. Jegi's difference from what is outlined in the paper is mainly this,—that he devotes more time to a less number of topics. Otherwise I do not see that there is any material difference. In everything else, I think it has been said, and repeated, it is hygiene more than physiology. In one matter, however, I have never had any doubt; that is, the ability to teach people plenty of hygiene and without the anatomy. The question of practice is what I am concerned with. We all of us know enough so that we might be perfect specimens of humanity, but

I think we are a little faulty in many respects; and it is because we do not pay attention to the things that we know will benefit us, and have known for years. What I would like is to have somebody tell me how to get the hygiene into the lives of people.

Mr. Jegi—It is possible that the people in physical culture could give us a little light on this matter.

PURPOSES, SCOPE AND PLAN OF WORK IN GEOLOGY.

E. C. CASE, Milwaukee.

Purpose.

The purpose of all instruction in Normal schools is to fit the student for future teaching. This may be accomplished in three ways: 1. Increasing the student's general knowledge and intelligence. 2. Supplying him with a necessary body of facts and facility in using them. 3. A combination of both.

From considerations of time, number of necessary studies, and so on, the first method can but rarely find a place in Normal schools; the second is applicable in the strictly professional subjects and academic reviews; the third is almost universal in application.

Subjects taught under the third method may be given a strong trend toward either the first or the second. This is especially true of so broad a subject as geology; the instructor must therefore be on his guard and seek to make his course an aid to the student, who will be called on to teach physical geography, nature work, physiography and commercial geography in the grades.

Scope.

The scope of geology in Normal schools is really broader than is the general geology of colleges and universities. In the latter schools it is directed toward the general information of the student; in Normal schools, it must go farther and attempt to make the facts brought out available for teaching the subjects mentioned above.

Geology may be taught as a single subject covering twenty weeks or there may be a second course of physiography (including physical geography) covering an additional twenty weeks. These should not depend on one another, but should be so arranged that a student may take either without involving a loss (or review) of more than three weeks by repetition of subject-matter.

If but a single twenty weeks is given, the subject should be geology. Especial attention should be paid to matter that will aid the student in future teaching. A careful study of the physical characters of common minerals, rocks and soils and the dynamic action of ice, water, wind, etc., in shaping the present earth surface. Theories of earth origin, internal structure, thermal activities and historical geology in general should be less carefully treated and the student rather guided to sources of information than held for accurate study.

If the two courses are possible, more attention should be paid to the minerals and rocks and to the general theoretical questions, with an encouragement to wide collateral reading, and less attention to questions of physiography.

The course on physiography should include a brief study of the materials of the earth's crust and the forces employed in its construction and maintenance (sedimentation, agradation, mountain and plateau elevation) and a thorough study of the forces employed in its degradation and modification. It is here that the subject-matter of physical geography may be largely introduced.

Plan.

The plan of the work as here suggested, especially in laboratory work, is readily applicable to both courses or the single course; being elaborated or reduced as indicated under the scope of the subjects.

Laboratory work as here indicated includes work in laboratory, field excursions and periods given up to demonstrations by lantern and otherwise. This should occupy at least one laboratory period (two consecutive hours) per week, equivalent to one hour's recitation and one of study.

Laboratory work proper should include—

I. (a) A study of rock forming minerals, from their physical characters. Not blowpipe analysis. (b) A study of rocks and soils. (c) The identification of a collection of rocks and minerals.

II. (a) A study of geological maps and sections. The methods of preparation and interpretation. Preparation of sections from maps. (b) A study of topographic maps with especial reference to the interpretation of land forms therefrom.

III. (a) A study of models illustrating land forms and structural details. (b) A study of photographs and pictures illustrating the same.

IV. (a) A study of fossils typical of the geological horizons. (b) Identification of the student collection.

If the physiographic course is given, I and IV should be extended in the geology and II and III in the physiography with the addition of—

V. (a) A study of meteorological instruments. (b) A study of weather maps with exercises in predicting weather and following the course of storms. (c) The keeping of a set of meteorological observations.

Field work should involve the idea of a thorough study of a limited region, repeated in different phases until the student has mastered the various methods of investigation and representation of results. In the conduct of field work, the following plan is suggested:

The instructor should decide on a certain region, all parts of which are within comparatively easy access; this should contain the largest possible diversity of forms, and if possible, have natural limits; ex., a wide river valley, space between two rivers, etc. The excursions should be planned to follow the laboratory work on each subject if possible.

I Ex. To the most available point to make a collection of rocks. (In a glaciated region this may easily reach fifty specimens.) A list may be kept of the rocks found so that in a few years the addition of a new specimen will be of considerable interest.

II and III, and as many more as possible. Visits to isolated regions in the area. Ex., a river, bluff, lake shore, etc., each to be studied in detail; the order in which they are taken being determined by the order in which they are studied in class. Suppose a river is first selected.

(a) Get a general survey of the rivers, locate valley walls, flood plain, bank, bed, bars, rapids, tributaries, falls, delta, etc.

(b) Character and amount of sediment or larger material carried. Evidences of larger or smaller amount having been carried at previous times. Evidences of change in course. (Here a local map of the largest possible scale should be used and if an old map can be found, it would aid in locating any change in the course.)

(c) With aneroid barometer, get height of valley walls, slope of stream, etc. With topographic map in hand, follow course of valley locating points indicated in the map. With geological map, locate various outcrops. See that the student sees in nature the thing represented on the map. (No attempt should be made to use the maps until after the laboratory exercises have given facility in reading them.)

(d) Attempt a model of the valley in clay or sand to scale (?). Photograph the valley and show its features in the picture (?).

In general, compare every means of illustrating the features of the valley with the actual features of the valley so that representations of other regions shall give definite ideas.

Repeat for each natural region in the area.

At the termination of the detailed study of this natural area, its topographic features should be studied in their relation to commercial geography. For example, the location of railroads in the river valleys and their following lowest grade in entering a town; location of shipping on shores or on wide flood plain of rivers, location of factories at falls, etc. The effect of the topographic features on the climate as to the presence of large bodies of water, elongated north and south valleys, high ridges across prevailing winds, etc.

The study of the relation of the topography to commercial geography and climate should in no wise be omitted.

IV. Excursions to any or all outcrop of fossiliferous rocks to make a collection for identification.

Illustrative Demonstrations.—Several laboratory periods can advantageously be given up to demonstrations by the instructor which shall require no immediate recitations by the student.

1. (a) Lantern exhibitions of views showing details, structures, land and water forms, on as large a scale as possible. (b) Lantern exhibition of fossil forms restored. Pictures of skeletons convey no idea and restorations are now sufficiently accurate to permit of introduction. (c) Projection by lantern of rock-sections to show structure. (d) Exhibition of models, pictures, etc.

Class work should consist of recitations in text-book, more or less formal lectures by the instructor, and reports by students on the field excursions.

The general plan of the work in geology, whether of one or two courses, should run somewhat as follows:

1. The earth in its relations to other bodies, its origin, structure, materials, etc.

2. The forces occupied in building up the crust.

3. The forces occupied in tearing down the crust.

Where the two courses are given the last of these should be largely considered under physiography, the first two under geology.

Under the first heading should be included: the position of the earth in space relative to the other members of the solar system; its orbit and special relations to sun and moon; the resulting phenomena as seasonal changes, diurnal changes, tides, etc.

The theories of the earth's origin and development up to the beginning of the geological historical record.

The theories of the earth's internal structure. Relation of atmosphere, hydrosphere, and lithosphere. Past and present changes in these relations.

The minerals, rocks and soils. Origin, occurrence, character, changes, relative amount, etc., etc.

Under the second heading sould be considered those forces which are instrumental in building up and modifying the crust. It will be impossible to distinguish absolutely between constructive and destructive forces, but such a distinction can be made in broad lines and will serve as a help to the student in getting a grasp of the whole subject.

Such forces would be igneous, with all related phenomena, volcanoes, hot springs, geysers, increase in temperature with descent toward center, "blanket theory" of mountain making, etc.; general theories of continental, plateau and mountain elevation; sedimentation and deposition. Attendant phenomena on action of constructive forces, or accidents to crust. Folding, faulting, earthquakes, jointing, metamorphosis of rocks.

At the close of the work, under the second heading, historical geology should be introduced. In the physiography course, the principles of physical geography should largely replace historical geology.

Under the third heading should be considered the forces employed in the degradation of the land. Rivers, water currents of all kinds, underground water, ice, wind, plants and animals.

Degradation (denudation), consisting of three processes,—weathering, erosion and transportation,—each of these may be considered separately and in order mentioned.

Weathering consists in loosening material in place; action of frost, change in temperature, solution, chemical reaction, plants and animal action.

Erosion may be by water: Rivers (introducing life history of rivers), ocean and lake waves and currents, rain, ice (glaciers, shore ice, bergs, etc.), and winds. Together with the study of active erosion should be introduced the study of effects produced by previous erosion; base leveling, mountains of circumdenudation, rounded topography, disappearance of divides, production of cliffs and altered coast line, etc. Also the checks on and aids to erosion; presence of lakes in river course, changes of slope by earth movement, changes in climate, etc.

Transportation by water, ice and wind. Difference in the character of transportation in each and difference in character of deposited material. Stratified as opposed to unstratified, etc.

Theoretically, after the careful study of physiography and topography, should follow a study of relations of world topography to the commercial geography of the world. Practically, however, it seems best to give this distributed through the course wherever the instructor can make it tell and have but a brief exercise upon it at the end.

Sample of suggested treatment of one subject:

Erosion.—River erosion (including life history of rivers). Laboratory work on interpretation of maps to precede. Excursions to river valley to accompany.

River as an erosive agent.—Erosive power depends on velocity and

amount of material carried. Seasonal and local variations in erosive power. Relation of erosion to weathering.

Life history of rivers.—Definition of rivers. Function of rivers. Youth, maturity, and old age of rivers, with characteristic topography of each. Accidents to normal development of rivers, e. g., changes in level of the land, changes in climate, etc.

Relation of rivers to commercial geography.—River valleys forming natural areas of lowest level and gentle slope; broad flood plains and deltas furnishing location for cities and fertile agricultural regions; falls locating manufacturing cities and limiting navigation.

DISCUSSION—GENERAL.

Mr. Case—The plan of my work is rather long drawn out, and the one or two points which I would think might be at all valuable to discuss in ten minutes, is the division of geology into two courses, a geology *per se*, and a physical geography. A physiography which shall be largely physical geography, and a physical geography having a very close relation with commercial geography. In the division of the course into geography and physiography, I have placed in geology, as you can see by reading the paper, the consideration of the more practical questions. I have left out the more theoretical points, and have put in a more complete study of mineralogy, the physical character of the mineralogy, and of topography, and of physiography, the study of topography and its relations to commercial geography, leaving out pretty largely the theoretical consideration, leaving out the historical geology almost entirely, and taking up only those points which can be applied in elementary physical geography and nature work. I have suggested three vital things, the study of maps, etc., field excursions, and lectures and demonstrations. I have indicated the parallel method of the laboratory and the recitation. I have put laboratory work and field excursion in contrast, but the point I want to insist upon is to have you endorse, if you will, two separate courses, one in geography and one in physiography.

Mr. Upham—Do you wish to lengthen the time already given to geology?

Mr. Case—I am only allowed twenty weeks. I want to lengthen that just three times. I do not mean to lengthen geology to sixty weeks, but give sixty weeks of my time, in three twenty week classes.

Mr. Mitchell—When the board was equalizing the taxes, some man came in and wanted his taxes raised. The story is that they all fell dead. I don't want any more time for geology. For my purpose it is enough. The purpose in geology in the Normal school is to get those people ready to teach geography, and that is all the purpose there is to it, as far as I see.

Mr. Upham—And understand agriculture?

Mr. Mitchell—Yes. That is the purpose in chemistry. But in the work in geology, these schools are professional schools. They are going to get people ready to teach school, and they are going to get them ready to teach the things they are going to teach, and not the things we dream about their teaching. I have quite a number of students over the state of Wisconsin who are teaching geography,

actually going through the process of teaching geography, and of some thirty or forty students I have had, I do not think there is a single one of them teaching geology. The purpose of that work is to get those people ready to teach the subject of geography in a rational way, and it is a part of the course in geography and in this school a part of the department of geography. I will say that in addition to the twenty weeks of geology, we have twenty weeks of physiography. This gives the students the privilege of electing thirty weeks of earth study placed on top of thirty weeks of geography, and those people can teach geography to the satisfaction of high school teachers and superintendents.

Mr. Perisho—I would like to ask Dr. Case when he is contending for two separate and distinct courses, if he would make the course in physiography a prerequisite to the course in geology.

Mr. Case—By no means. I have stated in my paper that the courses should be so arranged that they can be taken by one student with not over three weeks taken up in covering the same ground. I do not see how two courses can be taken by the same students without covering somewhat the same ground, but it can be easily arranged so that not more than three weeks shall be used up.

Mr. Perisho—I agree with Mr. Mitchell that the one great aim of geology in our Normal schools is to prepare our students for geography, and believing so thoroughly in that aim, my course has been largely geographic in its character; but I understood from the gentleman who presents the paper, that he wants now to introduce a course in physiography, and my question is this: If we have a course in physiography, will he have the course in geology entirely independent of that course? It seems to me these courses should be thoroughly correlated. The student taking geography should have had the physiography before he takes it up. In that way I think we can get much better results, and we can get a stronger geography teacher.

Mr. Mitchell—I do not see how you can bring that about. There are forty weeks of elective science. A student may take twenty weeks of physiography, or twenty weeks in geography, or both. That is the condition of things.

Mr. Perisho—Is there any course in the entire list of studies taught that will better prepare the teacher or the student to teach geography than the course in physiography?

Mr. Mitchell—I should say, "No, there is not."

Mr. Perisho—If the course in geology is to prepare the student to teach geography, then how can you differentiate them and keep one entirely separate and distinct from the other? This student selects geology rather than physiography. They must be separate and distinct, and not overlap. That is the point I am trying to make. How can we keep them separate and distinct when aiming at just the one thing, to make the geography teaching better in this country?

Mr. Upham—Prof. Perisho states that he teaches his geology with special reference to preparing teachers of geography. What particular thing would you do differently if you were not aiming to prepare teachers to teach geography?

Mr. Perisho—I do not intend to do any such thing as that at all. You know physiography is a new thing. I said in my opening remarks that my course in geology, twenty weeks, like the rest, has been largely geographic in its character.

Mr. Perisho—I wouldn't to teach it any other way than geographic in its character.

Mr Upham—What would you have done if it had not been geographic in its character?

Mr. Upham—What sort of geology would that be that wasn't geographic in its character?

Mr. Perisho—My question was to these men who want two courses, one in geology and one in physiography, not overlaping. I propose, now that we have got physiography, to teach the geographic part of geology, and then continue in the geology and go a little farther into the geology spoken of by the gentleman who presents the paper. I propose to have them closely correlated, one after the other.

Mr. Case—These gentlemen have got what I want, and I want what they have got. I have been teaching physiography, and if I had a chance I would teach more of it.

Mr. Upham—I was about to suggest to the gentleman that if he had to teach geology, call it geology, but teach what he had a mind to.

Mr. Mitchell—In the course of geology in the Chicago University, there are 27 or 29 courses. Any of these are all right from the standpoint of geology, but are not all right from the standpoint of geography by a good deal. There is five years' work in geology which we never touch. There is work in geology that would require a thorough study of biology, chemistry, and physics before the student could undertake it.

Mr. Upham—I should like to ask some gentlemen who are teaching geology, about how much time they put into what you might call the mineralogy of it. My point is this: In order to understand the geology, or even geography, we have to talk rocks a good deal. How much time of the twenty weeks do you put into teaching the pupil so that he will know shale when he sees shale, and quartz when he sees quartz?

Mr. Perisho—Time enough so that the student will know the common rocks.

Mr. Upham—About how many weeks?

Mr. Perisho—It is very difficult to say because it comes along with geography.

Mr. Case—From two to three weeks on mineralogy.

Mr. Ewing—Possibly a week, and then it's with us all the time that we are studying geology.

Mr. Merril—In a twenty weeks' course in geology I should give about five weeks to the determination of common minerals, and the combination of these minerals in the common rocks. I would take perhaps three weeks of the time on the common minerals, that is, determining these common minerals by their characteristics, and the remaining time in the study of the combinations, and visiting places that show these combinations so that students can recognize the various kinds of sedimentary rocks, and in a general way recognize the more common ones of the plutonic rocks.

Mr. Sims—I would like to ask this question. I would like to know if these gentlement are using the physiography and dynamic geography as synonomous terms. I do not know just what they mean when they say that instruction in geology should precede the instruction, in a Normal school, in either political or physical geography. Where

does it come in? I ask that question because I do not have the geology in my school, but do have the geography.

Mr. Case—I believe that geography comes first.

Mr. Jegi—In our school geography comes anywhere.

Mr. Merrill—The geology nominally belongs in the fourth year of the course, and geography anywhere else.

Mr. Perisho—Geography precedes all work in geology.

Mr. Mitchell—Same here.

Mr. Ewing—Comes last, in the fourth year.

Mr. Mitchell—As to how much time is given to the study of mineralogy: I think we possibly do such work in mineralogy as is suggested by the other gentlemen, but we don't do it that way. We don't study shale today, we study shale when we have shale to study, sandstone when we work with sandstone, and so on. There is no particular time, simply a part of a lesson instead of having ten or twelve lessons set aside for that phase of the work.

Mr. Perisho—That is just the point I said I could not answer without developing the whole thing. There is not one, two or three weeks set apart for this.

Mr. Upham—Some take a little time at first, as a sort of a preparation, so when the student gets to this and reads of it, he won't have to break the continuity of that lesson by stopping and taking a lesson on sandstone. There are two ways of doing; some do one, and some another.

Mr. Culver—I give from three to five weeks to determinative mineralogy. It seems to me a pretty practical thing to make the students measurably familiar with the commoner rocks containing minerals, and with the commoner rocks before they run into them accidentally. That is what I want my course to do for them, and I agree with Mr. Mitchell that the main purpose is to prepare for geography in our schools. Our course is the same as the others, having geography in the first year and geology in the fourth year.

Mr. Upham—The geography ought to be a little help in geology.

Mr. Culver—There is one question I would like to get back to. I am not quite clear in regard to the opinion here as to the order in which physiography and geology should go. I was a little surprised to get the impression that the physiography should come first, and the geology later. As I understand it, I may be quite wrong in the matter, the study of dynamical geology—of the forces at work upon the earth at the present time,—lies at the basis of physiography. If I understand physiography it is the study of landscape geology. What is the genesis of this particular measure which is before us now? Before that can be answered, before understood, the student must have some knowledge, some acquaintance with the forces we have in dynamic geology. I can not understand how that can go before. I would like to know whether I misunderstood the gentlemen who spoke, and whether they would put physiography first, and geology later, or vice versa.

Mr. Mitchell—It is this way in our school,—I supposed it was the same in every Normal school in the state, but I am finding out that something that is in your school is pretty sure not to be so in any other school. We have forty weeks of elective science, and that is elective in the sense that the student elects it. It is not elected for him, it is open to him, and he is to select forty weeks of it. Now the work is so arranged by the Board of Regents, or by somebody, not by

me, that a student can elect twenty weeks in geology or twenty weeks in physiography, or he can elect both or neither.

Mr. Culver—If he elects both, do you give him the physiography first?

Mr. Mitchell—He won't elect but one at a time.

Mr. Culver—Which one first?

Mr. Mitchell—Depends upon him entirely. I have had students who elected the work in geology, and then came back and took the work in physiography, and the other way.

Mr. Culver—Is that as logical as the other?

Mr. Mitchell—There is no use to make any "bones" of it, we can't teach geology without a knowledge of physiography. There is this difference,—geology is interested in the structure of mountains, for example, but geography doesn't care very much what the structure of mountains is. It doesn't care a thing about the structure of those mountains, but the thing that is of importance in that phase of physiography is the arrangement of mountains. You could study geology for a long time and you would never get the arrangement of mountains, and the influences of that arrangement upon other things. Now, physiography looks primarily at the arrangement of those mountains more than to the structure, although the structure comes in, but the arrangement has the greatest significance.

Mr. Ewing—I should like simply to raise the question about the amount of time required to do the work that Mr. Case has outlined. He certainly has a good many things in there that I do not undertake in the same length of time, and as I read it over it impressed me that I did not see how I could do it without leaving out some things I feel that I want to do.

Mr. Upham—Specify.

Mr. Ewing—This matter of studying the local geology very closely. Now of course I understand that to a certain extent, but as he has outlined it it has seemed to me that there is considerable in there that I should not know myself just how to go to work at. I do not know just what it means,—the matter of studying geological maps, the matter of modeling valleys, and a number of questions along that line,—there are a number of things there that I don't attempt, and yet I never get through with what I do attempt. Can all the work outlined be done in the time that we have to do it in?

Mr. Perisho—It seems to me there should be a continuity right through this whole subject. What is physiography? It is not anything very different from geographic geology, not very different from dynamic geography, is it? It is a study of earth form, a study of the topography of the country. The purpose of all geology work, of all physiography work, according to Mr. Mitchell, is this,—it is to prepare the student to teach geography. We all agree to that, I think. I think it does make a difference. If that is the object, I think the physiography should precede, or that part of geology which we call physiography, should precede this dynamical work. Let the student take those two, and then if he has time and wants more science along this line, he can take geology after that. Give him the thing that will prepare him best to teach the geography.

Mr. Upham—I wish to say again that these discussions should deal with the purpose, scope, and plan. All agree upon the purpose of geology in the Normal school, to get folks ready to teach geography.

Then the next question is the scope, what are we doing? I want to know what every man is doing, and I hope that they want to know what I am doing. It is the purpose to unify all of our work. There is no call to discuss here which ought to precede. A condition and not a theory confronts us. Here is the course. What are you doing under that course of study?

Mr. Culver—I would like to say in reference to some of the points under scope which Mr. Case has made, that I agree with him in this point, that we should teach our students to read topographic and geologic maps. It is a source of information of which as teachers of geography they will wish to avail themselves. There may be topographic maps of a certain region; if they are blind to those maps, they are handicapped. They can not get information that is available. In regard to field work, I have had visions of having my classes take a region and make a careful, exhaustive study of it, but I have to confess my visions have never materialized yet. We do do considerable of what we call field work. We make excursions on Saturdays, and sometimes on other days, after school, and last year I did get consent to take my geology class out for a two days' trip. This was not for the purpose of making a detailed study of any particular region, but to widen their views and to give a more definite conception of what we were talking about in the classroom. The result of that trip was worth more to them than any two weeks' work in the classroom. The class felt, when they got back, that that had been the case. And I would make a good deal of this field work, because it has a direct bearing upon the geography work, familiarizes them with the geographic and geologic features of the country, and teaches them how to make use of material when they take geography classes out. I know that some of my students, if not all, have found the work that has been done in geology of very great advantage to them. I should like to emphasize that idea of local field work, extended as far as the limitations of time and means will allow, and I question a little whether it is possible to do that detailed work which Mr. Case suggests.

Mr. Case—Mine will be largely geography. In answer to Mr. Ewing's question, I have not been able to do what I have outlined. It is an ideal course. If you can do it, you are a better man than I am, and to be congratulated, but I think it should be done. I have involved in my outline of geology here, and in the detailed study of a localized region, an idea of discipline. First, to do as much of that as we can. Then to study a local region, each portion of it in detail, and carefully as you would take an experiment in the laboratory. Then to study that region in which you have seen the rocks, the soil, the verdure, and it may be to study the industrial region on the map, so the student may know that a topographic map does represent what he has seen. Then to measure with barometer or whatever you might have, to measure and correct that hill, and to try and lay that out on the topographic map, to increase the connection he has between the actual object, and the method of representation. Then he may see the same things in a lantern slide. As far as clay modeling goes, I do not much believe in it. I doubt the practical value of modeling, but a person might construct a model of a hill or valley and get considerable benefit out of it. I think that the geography might do a great many of the things that I have outlined there for the physiographic student, or the field excursion study, and get the same benefit that the geology gives.

So in putting in so much detailed work I have in mind first, the discipline that the student would get, and second, his thorough appreciation of the object in relation to the different methods of representation, and of the many different kinds of representation with the same object which he has seen, and the more of this he does the better student he will be, and better able to interpret map or representation.

WHAT SHOULD BE THE PURPOSE, SCOPE, AND PLAN OF WORK IN GEOGRAPHY IN THE NORMAL SCHOOL?

F. E. MITCHELL, Oshkosh.

The purpose of the work done in a special school must be determined by the purpose of the school. For example,—the purpose of a medical school must be of such a character that it will so develop the student that he becomes skillful in the treatment of disease. The dental school must turn out graduates that are skillful in the treatment of the teeth.

When a person requires the service of a dentist, he cares but little whether the doctor of dental surgery understands Greek or Latin. The thing that he insists upon is that the dentist must know exactly how to treat the teeth.

The statute that established Normal schools in the state of Wisconsin clearly defined the purpose of these schools. The state of Wisconsin clearly and definitely states that the exclusive purpose of these schools shall be the instruction and training of persons, both male and female, in the theory and art of teaching and all the various branches that pertain to a good common school education, and in all subjects needful to qualify for teaching in the public schools.

While the state has been very definite in stating the exact purpose of the Normal school it has been no less definite in its statement of the subjects to be taught in the common schools. Section 447 of the revised statutes says that "Orthography, Orthoepy, Reading, Writing, Grammar, Geography, Arithmetic, History of the United States, the constitution of the United States and of the state of Wisconsin shall be taught in every district school and such other branches as the Board may require."

Since the public schools of the state consist largely of district and graded schools, and since the greater part of the public school work is in the elementary, or common school branches the Normal school must first of all seek to ground its students thoroughly in the common school, or legal branches. This must not be done merely in theory but must be an accomplished fact.

Speaking on this point Edward Everett in his speech at the opening of the first Normal school in the state of Massachusetts said, "If there be any persons to whom the words 'common school' or 'common school education' convey any idea of disparagement or insignificance such persons are ignorant not merely of the true character of our political institutions but of the nature of man." * * * * "But whether we consider the number who enjoy their benefit, the relative importance to the state of an entire, well educated population and the benefit of

those who receive the advantage of an education at the higher seminaries taken with the fact that a liberal education may be had elsewhere, but that a common school education must be had at home or not at all, no rational man as it seems to me can fail to perceive the superior importance of the common schools. They give the keys of knowledge to the mass of the people." * * * * "I think that it may be said that the branches of knowledge taught in our common school when taught in a masterly, finished manner are of greater value than all the rest taught at school. Our common schools are important in the same way as the common air, the common sunshine, the common rain,—invaluable for their commonness."

In speaking of the course of study he says,—"First, a careful review of the branches to be taught. It being of course the first requisite of a teacher that he should himself know well that which he is to aid others in learning. Such an acquaintance with these branches of knowledge is much less common than may be generally supposed. The remark may seem paradoxical but I believe that it will bear examination, when I say that a teacher thoroughly versed in those branches of knowledge only which are taught in our common schools, is as difficult to find as a first-rate lawyer, divine or physician, statesman, man of business, or farmer."

It should be the purpose of the Normal school to supply to the state teachers as thoroughly masters of the various branches they are required to teach as a first-rate lawyer is master of the law; or a first-rate doctor is master of the science of medicine; or a first-rate banker is master of finance.

Each one of us has a general knowledge of physiology, but no doctor of standing would certify that we have a professional knowledge of that subject. Nor would he admit that such professional knowledge could be obtained by taking a course of five or ten weeks of professional physiology,—even if we have had a review of physiology in the high school.

To know a subject professionally the student must be absolute master of it,—an authority, so to speak.

He must make critical and philosophical investigation of the facts and see the relations existing between the facts involved. He must see the order in which the subject-matter unfolds and develops. Rosenkranz says that every subject has in it a certain fixed order of sequence. The teacher must fully comprehend this order. The law that created Normal schools in the state of Wisconsin says that the exclusive purpose of these schools shall be to prepare teachers for the teaching service of the public schools of the state. In defining the work to be taken up in these schools among other branches enumerated is geography. Therefore the purpose of teaching geography in the Normal school is to prepare persons, both male and female, to teach geography in the public schools of the state. The Normal school was established for the exclusive purpose of supplying professional teachers for the public schools of the state, therefore the Normal school must, among other things, give its students a professional knowledge of geography.

Geography may well be termed the popular science. It is taught in all the grades from the kindergarten to the high school, and the knowledge required to teach geography successfully in the primary

form is not a whit less than that required to teach it in the high school. If there is any difference it is really greater.

When the teachers of the common schools of the state of Wisconsin are thorough masters of reading, writing, grammar, geography, arithmetic, and the history of the United States, there will be no place for the $18 novice, because teaching will be in reality a profession.

There are many business men in every community who know these branches of learning better than the teacher who is not only paid for knowing them but for imparting this knowledge to others. What standing would a physician have in a community where it could be truthfully said that there were many persons in the community that understood the science of medicine better than he? The teacher should be a powerful influence in the community; but this will be impossible until the community can find in the teacher, a master. The world is just as quick to recognize proficiency as inefficiency. The teacher can only be an influential member of the community when he above all others is master of his profession.

An eminent educator has said and with much truth that "The world steps aside to let a man pass who knows where he is going." A great deal is heard these days about "culture studies." The greatest culture that ever comes to any man or woman comes through the thorough mastery of some thing and it does not matter much what the thing is. When he knows and knows that he knows, he is, according to the Spanish proverb, a sage and this gives that dignity of character that nothing else can.

The scope of the work in geography is determined by the nature of the subject. Geography deals with the material basis, the primary conditions and explanations of life and the substantial preparation for it. Lakes and plains, rivers and mountains, plateaus and deserts are not geography. They are the material by means of which geography is explained. Geography deals with the material basis, the primary conditions and explanations of life.

In geography there are three phases, not three kinds, and the phase is determined entirely from the point of view.

Mathematical geography deals with the general distribution of heat. Physical geography deals with the general modification of the general distribution of heat and seeks to show the effect of this general modification upon the general distribution of plant, animal, and human life. Industrial geography takes up the subject where physical geography leaves off and proceeds to investigate those special modifications of the distribution of heat that immediately affect man in his institutional life, especially the business world.

Mathematical geography deals primarily with the earth sphere. A very clear understanding of which is absolutely necessary to the understanding of the other phases of geography.

In physical geography there are four distinct steps. The lithosphere, the atmosphere, the hydrosphere, and the biosphere including human life. The scope of the work on each of these spheres should be broad enough to set forth the fact element in each of these spheres and to show the relation existing between these various spheres,—example, the effect of the atmosphere on the lithosphere, hydrosphere, biosphere, etc.

In industrial geography the scope of the work must be of such character as to set forth those special features of each of the above named

spheres that immediately affect the life of a people, especially the business world.

Method in geography.

The problem in method should be how best to adapt the subject-matter of geography to the growing mind. This must be determined by the nature of mind, the nature of the subject, and the purpose of education.

The plan of the work is indicated in the statement of the work. It seems to me that every lesson in geography in a Normal school should be a professional lesson, and that the student should get these ideas with the express purpose of imparting them to others. The Normal student should be a professional teacher, not because he has selected teaching as his vocation but because he has a definite knowledge of the matter to be taught and because he thoroughly understands the method of imparting this knowledge to others.

DISCUSSION—GENERAL.

Mr. Mitchell—The question is,—What should be the purpose, scope, and plan of work in geography in Normal schools? You can't tell until you find out what the Normal school is for. The purpose of work done in a special school must be determined by the purpose of the school.

Mr. Donnelly—How does this purpose in geography differ from the purpose in arithmetic?

Mr. Mitchell—Not a whit.

Miss DeReimer—In regard to the purpose of geography, I am quite interested in the subject that was presented by Mr. Donnelly in regard to the exact purpose. I agree in the main in regard to the outline that was presented by Prof. Mitchell, but there is not the definiteness in it that we are looking for, first, in regard to the purpose. What is the definite purpose of geography as apart from the purpose which is in view with any other subject of Normal school instruction? I understand scope to mean the scope of Normal work under the existing conditions.

Mr. Upham—That is as the State Superintendent has stated over and over again in his instructions in connection with this work.

Miss DeReimer—It is not an ideal, but scope under existing conditions. I fear that it is somewhat ideal in nature. In regard to the preparation, Prof. Mitchell has suggested the necessity of absolute mastery over the subject. How is it possible in a Normal school for a student to become master of the subject within ten weeks or twenty weeks' time, with the preparation the average pupil has in the graded school? In our Normal school training, how can we turn out teachers who are absolute masters of the subject?

Mr. Sims—The comment I should make on Prof. Mitchell's paper is one of general approval. Putting it in the broadest possible way, there are two subjects taught in our schools, only two subjects. One of these is geography, and the other is sociology, which may be a form of geography. The purpose of the work in geography, it strikes me, is just the same as that of any other subject we present in the Normal school. Prof. Mitchell has outlined this admirably. He says Normal

schools are designed to supply teachers for all schools of the state of Wisconsin, and whatever subjects are taught in the common schools of the state should receive strong attention on the part of the Normal school teachers. And that is true of geography, surely. Another point in Prof. Mitchell's paper, which I think needs strong approval,—that every teacher of geography in the schools should know the subject in a professional way. It is just as important for the grade teacher to know it as for the high school teacher. In regard to the scope of the work, it strikes me that every phase of geography should come in. What do we mean by every phase of geography?—for instance, physical geography, physiography, geological geography, and so on. It seems to me that the grade teacher, or whatever teacher of geography, in handling any particulary region of the earth's surface, must know all these phases. Take, for instance, the geography of the eastern part of the United States, known as the middle Atlantic region. What must the teacher organize in reference to the subject? He must know the geography of that region, especially as related to the industrial life of men; that depends on a good many things. For instance, he must know that that region has a certain amount of heat. How get that heat? How does the region lie in reference to the great heat belt? How is heat modified? There the idea of mountains, for instance, in modifying heat; in what way? Is that a part of physical geography or a part of geology? At any rate, the grade teacher must know that. Then again, in that same region, becuse of a certain amount of heat, a certain amount of rainfall, which makes possible a certain kind of vegetable life, what forces are at work that produce that rainfall? Why so great or why so little, in that particular region? The idea of a certain body of water supplying vapor, certain forces condensing that vapor, therefore a certain amount of rainfall. There again is a certain amount of geography. Since there is a certain amount of vegetable life there, certain crops will be produced. What kind? How much in excess? What are you going to do? Then would come the lines of transportation. They have in that particular region such a structure as the Erie canal. Why was that particular canal built where it is? Why not from Lake Ontario to the Hudson river? The idea of geology again,—historical geology. You do not do anything with historical geology in the Normal schools. In teaching that particular thing you must teach historical geology. Then because of these forces we have the gathering of the people into large communities. My point is to show that in teaching political geography, as it is related to man's life, the student must have a broad knowledge of all these things, and unless the student can organize these facts about any particular region, that student can not receive our approval as a strong teacher of geography when he goes out into the common schools. Therefore I take it that the scope of the work in geography should include what has been said here as dynamic geography, physiography, a certain amount of historical geography, physical geography, and ability to organize all of these facts in application to political geography.

Mr. Upham—In connection with what the gentleman has said about historical geography, I would like to ask how many of the teachers of geology do teach, to the extent of several weeks' work, historical geology?

Mr. Perisho—Do not say several, say a few. Six.

Mr. Mitchell—The effect of topography upon life is not historical geography.

Mr. Sims—I meant a general knowledge of historical geography.

Mr. Patzer—I agree most heartily with everything presented by Mr. Mitchell. I agree also with Mr. Sims. That course of study that he outlined, we pursue at Milwaukee, and have for the last three years. I taught the geography there, and did all that he outlined in four weeks and one day. The paper it seems to me, calls attention to a very large branch of study. Geography is surely as broad as the earth. If we are ready to accept the scope and sequence of work as presented, and I rather think we are in a general way,—if we are ready to appreciate the fact that geography is to be taught in all of the grades as it is at the present time, then we must realize that in our Normal schools we must secure more time for the teaching of geography. I happen to be teaching geography. I am teaching other branches also. I would like to make a plea here for more time for this broad subject of geography. I would like it, however, on record. There is some satisfaction in letting off a little of this that has been bottled up for some time. I believe heartily with everything that Prof. Mitchell has given us. I believe also that when these teachers have secured this academic foundation for teaching geography, that then it becomes necessary for us who are handling this subject professionally, to take up specifically the work in the grades. If that is granted, and I purposely use the indicative there, because it ought to be granted, if that is granted, it seems to me that we ought to have at least one year for geography. If we are to outline the purpose, scope, sequence of work, and method for, say the third grade, where the regular work in geography begins, and work that out carefully, and somewhat in detail, and then take up the fourth grade work, and work that out somewhat in detail, and bring a little of this rational geography that Mr. Perisho touches upon, or has implied in his remarks, and so go on throughout the grades, fifth, sixth, and seventh, and possibly the eighth, and introduce considerable of the physical geography, as has been intimated, I do think that we can't begin to do that in ten weeks. Now we are giving ten weeks in our Normal schools to geometry, which our graduates never are called upon to teach. They come fresh from the high schools with an entire year's work in geometry. Most of our graduates never touch high school work. The same holds true with reference to algebra, and I might go on. The plea that I would like to make is that we get more time to do that which has been outlined, and determined upon as necessary.

Miss Rogers—I would like to say that I have been interested in this paper of Mr. Mitchell's. I know something of his work in school, and know that he makes his plans work, and being perhaps the teacher of geology is in his favor. I thing we all who are teaching geography owe the teachers of geology a great deal. We could not teach teachers to go out and teach geography if it were not for the geology teachers. At least, I couldn't in the twenty-seven weeks I have for geography. So whether it comes under the name of geography, or physiography, or nature work, and I do not care what name, so I can see geography in it, I welcome it.

Mr. Perisho—It seems to me that it is the business of the physiography and the geology to help the geography teacher to prepare the student so that he may be able to do just exactly what we have all

been saying he ought to do. It is our business to cooperate with the geography teacher in this preparation of the student.

Mr. Donnelly—How are we going to do that, if we are asked to teach geography in the first year, and have these things come in long afterwards?

Mr. Upham—We don't by having our geology help the geography teacher in her work right when she has the class, but I trust that we do help the student before he goes out. If the student has geography twenty-seven weeks, and then geology with us twenty weeks, he ought to go out very much better fitted to teach geography.

Mr. Perisho—Not to help the teacher in her work, but help the teacher to prepare the student.

Miss Rogers—Another thing. There are a great many students in the Normal schools who do not teach geology. When I dismiss my pupils I always say, now take that geology. But they don't take it. They take chemistry, advanced physics, everything else, rather than to take the geology. The fault is not with the pupil. The fault is that he has not gotten geography enough to know how the geology is to help him, first, and in administration second.

Mr. Upham—One reason at Whitewater is that the pupil feels he has gotten so much geology out of the geography he doesn't need anything else.

Mr. Donnelly—The main purpose is to prepare pupils to teach geology. Why put it off to the end? Is it because it is easier to study geography than geology?

Mr. Upham—Yes, I think that is the idea. Another reason a great majority of the pupils do not take geology, is that it comes so late in the course they drop out. Most of you agree that they better have the geography, twenty-seven weeks, then geology, twenty weeks, with the purpose of learning how to teach geography.

Mr. Mitchell—I am perfectly willing to admit that the geography people want the earth, and I am also willing to admit there are some teachers of biology and geology that would be perfectly willing to take a ninety-nine year lease on it. I simply want to say this: I didn't make the subject of geography, and am not responsible for it. But I want to say this, also: There is this fact in the case; there is such a thing as the earth's sphere that must be mastered. That is the condition of geography, that is what you have got, the one thing that has got to be mastered. There is the arrangement of mountains, with the effect of moving water, the effect of plant life. That has to be mastered. There is the atmosphere, it is in geography, and I can't help it, but it has to be mastered. There is the hydrosphere, and all of these things deal with the conditions of life. These things have to be mastered. We have to show the relation of one to the other. Then there is the general study of the biosphere, which must be very general. There are five spheres. There are six continents that have structures. I wish they were fewer, but they are not. Every deviation that results in anything, any variations in the coast line, or variations in altitude, has a vital connection with the life of the people. Now I submit the proposition to you, is not that an impossible thing to teach in ten weeks, with final examination taken off of one end, and entrance examination off the other?

Mr. Briggs—According to Mr. Patzer, the teachers commence at third grade,—third, fourth, fifth, sixth, seventh and eighth,—six years of

geography. To my certain knowledge they have ten weeks of professional, ten weeks of industrial, ten weeks of physical, ten weeks of geology, and twenty weeks of physiography in this school,—seventy weeks! No one else in the school has hardly any show at all.

THE PURPOSE, SCOPE, AND PLAN OF WORK IN AGRICULTURE IN THE NORMAL SCHOOLS.

A. A. UPHAM, Whitewater.

This paper will be an attempt to give an outline of the purpose, scope and plan of the work in agriculture in the Normal school. No attempt will be made at an argument to show that agriculture should be taught in the common schools. This subject has been well treated in Bulletin of Information No. 5, issued by State Superintendent Harvey. The recent reports of the U. S. Commissioner of Education give numerous accounts of the work in foreign countries and also in our own country, from which it appears that there is a settled conviction that our common schools should give instruction in the principles of agriculture. It is also proposed to make a knowledge of the principles of agriculture a requisite for a teacher's certificate, and a committee appointed to propose amendments to the present requirements will so recommend.

This point being assumed as settled this paper will treat, first, of the course now being pursued in the Whitewater Normal school, and, second, will outline a plan for a longer and more extensive course.

The Whitewater course is ten weeks long and is a part of the One Year Course for Teachers of Common Schools. As at present constituted, the class contains students from every class in school, from post-graduates down. The course is based upon Bailey's Principles of Agriculture, and consists of work as laid out in that manual upon the three main topics, The Soil, The Plant and Crops, and The Animal and Stock.

Under the first topic is taken up—

The Constituents of the Soil.
How Soil is Made.
The Resources of the Soil.
Why Texture is Important.
How Obtained.
Texture and Manures.
Moisture of the Soil. How Water is held in the Soil.
How Moisture-Holding Capacity may be Increased.
Conservation of Moisture.
Tillage of the Soil. Reason, Effect of Tillage, and Manner.
Enriching the Soil. Farm Resources. Green Manures, Stable Manures, Commercial Manures.
Elements of the Soil. Nitrogen. Potash.

THE PLANT AND CROPS.

Relation of the Plant to the Soil, Climate, Animal Life, Man.
How the Plant Lives: Plant Activities.

Factors of Growth: Water, Salts, Oxygen, Carbon Dioxide, Sunlight, Heat.

Processes of Growth: Propagation of the Plant. Seedage, Budding, etc.

Preparation of the Land for Seed.

Subsequent care of Plant by pruning, training, tilling soil, killing enemies.

Pastures, Meadows, Forage.

THE ANIMAL AND STOCK.

Offices of the Animal.

Animal in its relation to the Soil, Crop, Man.

Animal in its relation to Man as Food, Articles used in Arts, Companions, Beasts of Burden, Pest Destroyers.

How the Animal lives: Physiology is briefly reviewed in this connection. In a longer course more time would be put upon this part of the subject.

Feeding of the Animal: Sources of Food, Composition of Fodders,—Water, Ash, Albuminoids, Carbohydrates, Fats. Feeding,—Nutritive ratio, Quantity of Food, Feeding Standards.

Management of Stock: Care of Stock, Housing, Watering.

The above is chiefly from the table of contents of Bailey's book. In addition to the classroom recitations, a series of experiments is performed by each pupil, two or more periods, or parts of periods each week being devoted to this work. The experiments may be designated as chemical and biological. I have planned to do this year about 30 experiments, on the principle that a few carefully done, written up, and thoroughly discussed, are worth more than a great number imperfectly mastered.

The chemical experiments are as follows:

CHEMICAL AND PHYSICAL EXPERIMENTS.

1. Dry out three samples of soil from depths 6, 12, and 18 inches and find per cent. of moisture. Dry to constant weight.

2. Saturate some thoroughly dry soil and find per cent. of moisture it will hold.

3. Saturate some thoroughly dry sand and find per cent. of water it will absorb.

4. Dry some soil and burn several hours in a crucible to find per cent. of humus.

5. Balance two cans of damp soil and till one of them, leaving the other compacted, to show that cultivation retards evaporation.

6. Balance two cans of soil, one loose and one close, to see how much moisture each will absorb, to show effect of cultivation.

7. Weigh out 10 grams of potato and thoroughly dry it, to show per cent. of water in potato.

8. Weigh out 10 grams of dry beans and drive out all the water, to find per cent. of water.

9. In a sealed pint can, burn a small piece of phosphorus, to show oxidation. Open the inverted can under water to allow water to enter and take up place occupied by oxygen. Notice proportional part occupied by water. Shake water to dissolve fumes of phosphoric oxide. Test remaining gas with burning match to show that the ni-

trogen will not support combustion. Test the water which has dissolved the oxide of phosphorus fumes, to show that it is acid. As a preparation for this test, show reaction of litmus paper with acid and alkalis. Explain that the phosphoric oxide dissolved in water is phosphoric acid.

10. Leach some wood ashes and filter the lye. Evaporate to dryness. The residue is crude potash.

11. Test for starch. Crush some grains of wheat and boil for a few minutes. Add a weak solution of iodine. The blue color is a test for starch.

12. Make carbon dioxide by adding H. Cl. to marble chips in water. Show properties by conducting gas to tumbler in which short piece of candle is burning. Afterwards pour in lime water and shake, thus showing that it is heavier than air, a non-supporter of combustion, and will turn lime-water milky.

13. Germinate a lot of seeds in a closed bottle and show presence of carbon-dioxide as a result of germination.

14. Make a kerosene emulsion and show use.

The biological experiments have been mostly selected from a list furnished by Prof. Goff of the university, and recommended by him for such a course. They are as follows:

BIOLOGICAL EXPERIMENTS.

1. Object: To acquaint pupils with different kinds of grain and to quicken their observation.

Apparatus: Let each pupil make a seed trough by folding lengthwise a piece of stiff paper about two inches wide and six inches long. Give to each pupil a teaspoonful of threshed grain of wheat, rye, oats, barley and buckwheat. Have them thoroughly mixed and let the pupils sort them, holding the seed trough in the left hand and pushing off the seeds with a pencil, moving the end of the trough to the place where the seed is to be deposited. Have the pupils make comparisons between the different kinds of grain, especially with the wheat and rye.

2. A study of the wheat kernel.

Object. To quicken observation and teach how to judge of quality of grain. Give each pupil a spoonful of grain and call his attention to the shape of the kernels, their taper at each end, surface, plumpness, the scar, the hairy appendage (seen with magnifying glass), comparative size and cause of different size. Bring out the relative value of plump and shriveled kernels, and market price of different samples.

3. Effect of water on seeds.

Object: To show that seeds will absorb water in proportion to the amount of surface in contact with water.

Apparatus: A long narrow bottle or test tube having a narrow strip of graduated paper parted along one side. The tube may be partly filled with water and the height of the water noted. After the seeds are dropped into the water the height may be noted. The difference will be the bulk of the seeds. A tube graduated to cubic centimeters is good for this work. One tube may be bought and others graduated from this. This is good work for the pupil.

Take three lots of seeds. Measure and dry the seeds on a towel.

Place one lot on a piece of blotting paper or cloth thoroughly wet with water. Cover with a tumbler. Place one lot between two pieces of blotting paper wet as before. Cover with a tumbler. Place the third lot in a tumbler of water. Twenty-four hours later, measure each lot of seeds and see which has swollen the most. The seeds whose surfaces were entirely in contact with water should have absorbed most water.

Note.—The remainder of the experiments will not be given in detail, but simply the object.

4. To show that seeds will absorb water sooner from damp compacted earth than from loose earth.

5. To show that seeds will germinate on damp cloth or partly covered with water, but not in bottom of tumbler of water.

6. To test the vitality of clover seed. For this experiment use a seed tester consisting of two circular pieces of cloth on a covered plate set in a warm place. Use 100 clover seeds and then the per cent. of viable seeds will easily be seen.

7. Study of the structure of the wheat seed.

8. To show that the larger the seed the deeper it may be planted.

Apparatus: Cans of soil in which seeds are planted at different depths.

9. To show two methods of germination: lifting seed leaves to the surface and not lifting seed leaves to the surface. Beet, radish, pumpkin; pea, wheat, and Indian corn.

10. To show importance of compressing soil after clover and other small seeds have been planted.

11. To show importance of using plump seed.

12. To show the rooting of Indian corn.

13. To show root hairs and roots. Plant seeds in seed tester, and also in sand in cans.

14. To show chlorophyll and its uses. Plant clover seed in two cans, one out in the light and the other shut up in a tin box. Put a few matches in each can to prevent mould. One can will have live green seedlings and the other dead white ones.

15. To show that plant food is necessary. Plant seeds in two cans. Have boiled rain water in one can and well water in the other. Rain water must be caught in clean wash-bowl away from spatterings or smoke.

16. To show value of clover to the farmer and to teach nitrates. Raise clover in sand and show nodules on roots. Explain to pupil the relation of those nodules to nitrogen and nitrates.

17. One lesson in grafting.

The design of these experiments is to give the Normal school pupil knowledge, and to train him to do experiments. Most of them should be done by each pupil in any course.

The chief question arising in regard to the experiments in the rural school will be the matter of scales for weighing. Prof. Goff has devised a scale for weighing up to 10 grams, sensitive to one-fifth of a gram, which would be accurate enough for the ordinary work prescribed. These he expects to be able to have made at a cost of less than two dollars each. German hand scales can be bought for a dollar, including weights, and are much used by students in foreign schools. They give results correct to within one or two per cent. If this subject is worth putting into the rural schools it is worth

spending some money for the purchase of apparatus. School work should aim to make the child *know* and *do*, and there is no better course for teaching manipulating of apparatus than experiments with soil, seeds, plants, and foods.

The Whitewater course aims to acquaint the student with agricultural literature. In fact, one of the chief benefits of this whole movement is the getting of the pupil to read agricultural literature. References are constantly supplied, on a bulletin board, to the U. S. Agriculture year book, Report of Secretary of Agriculture, Wisconsin Reports of Agricultural and Horticultural societies, Experiment Station, and general books of agriculture. Among them may be mentioned: Bailey's "Principles of Fruit Growing," King's "The Soil," Bailey's "Survival of the Unlike," Darwin's "Formation of Vegetable Mould," Gaye's "Great World Farm," Roberts's "Fertility of the Land," Stockbridge's "Rocks and Soils," Bailey's "Garden Making," Henry's "Feeds and Feeding," The Farmer's Bulletin sent out by the U. S. Dept. of Agriculture and Cornell University, Sargent's "Corn Plants," Bailey's "Evolution of Native Fruits."

Such is the course now pursued at the Whitewater Normal. Its limitations are as well realized by the teacher of the subject as by anybody else. The course is too short. The class is too mixed, embracing those who have had physics, chemistry, geology, and zoology, and those who have had none of them.

I believe it would be better, if we expect any good results in the way of teaching in the common schools from the Normal course, to combine the chemistry, geology and agriculture.

There are those who believe that knowledge gotten with an immediate practical end in view is more easily learned, more thoroughly gotten, and longer retained. The plan proposed is this: The course now includes twenty weeks of chemistry, twenty weeks of geology, and ten weeks of agriculture. Of these fifty weeks, turn over ten to the geography work, leaving forty for agriculture. In that time there could be taught much more thoroughly than now, the composition of minerals, their chemical relations, the weathering of rocks, and the resulting soils, the soils produced by rocks weathering *in situ*, the effect of glacial action and, incidentally, its extent. The chemistry of the non-metals and some of the metals found in soil-producing rocks could be taught. Also the chemistry of rocks, soils, plants, fertilizers, and foods; and being thus taught would make more impression on the average pupil than now, when those things seem to most as abstract science.

In this way, the properties of gases, water, acids, alkalis, etc, would be approached in a natural way. If there is anything in "natural method" this would furnish a subject for its trial. The course could be extended a little in various directions to include some dynamical geology, and theories of chemistry. It might not work as well as it promises, but most of the topics in geology not included in this scheme have to be taken as mere text-book work, and the parts of chemistry not included here make very little impression on the majority of those taking the subject.

A pupil who had a year of this work would have confidence in his ability to give instruction and perhaps would have knowledge enough to inspire confidence. It should be the constant aim to have the pupil

do as much as possible and observe,—not simply learn facts out of a book.

Below is appended a list of recent articles on Agricultural Education:

Report of Commissioner of Education, 1898-99.

School Gardens, p. 1067.

Agricultural Schools in Sweden, p. 254.

Domestic Science Schools in Great Britain, p. 26.

School Gardens in Europe, Report of Commissioner of Education, 1897-98, p. 224.

Agricultural Schools in Argentine Republic, Report of Commissioner of Education, 1897-98, p. 1212.

Methods of Instruction in Agriculture, Report of Commissioner of Education, p. 1575.

School Gardens in Russia, Report of Commissioner of Education, p. 1632.

Instruction in Agriculture in France, Report of Commissioner of Education, p. 1614.

Gardener's School in Russia, Report of Commissioner of Education, p. 1623.

Curriculum of Land Grant colleges, Report of Commissioner of Education, 1896-97, p. 427.

School Garden in Thuringia, Educational Review, 17-237.

Schools of Agriculture in Italy, Scientific American, 53-139.

Briarcliff School of Farming, Public Opinion, 28-727.

To teach Farming, Outlook, 66—243-5.

Minnesota Plan, Outlook, 65—656.

Rural Life and Education, Independent, 52—1631-32.

Improvement in college courses in Agriculture, Educational Review, 19—169-74.

DISCUSSION—GENERAL.

Mr. Upham—The plan consists in text-book work, and in some oral work given to the pupils, and in experiments in the laboratory. These are of two kinds,—you might call them biological and chemical. The biological are simply such as have been done by teachers of botany always,—planting of seeds, observation of the roots, and things of that kind, and others which will suggest themselves to you who teach botany, or who have taught botany. The chemical takes up a few experiments, in order that a pupil may understand what he means when he talks of oxygen, hydrogen, and carbon; what he means when he talks about acid, what about other things coming into this work of agriculture. There are some two dozen experiments of this kind, under the supervision of the teacher, written up in note book, and discussed in the class. That is the way the work is done in the Whitewater Normal school. There is a proposition here that the course ought to be longer than ten weeks. I have learned since I wrote the paper, that it was somewhat out of order to approve extension of time, and it might be just as well not to discuss that. I have this proposition: We have geology, chemistry, and agriculture. Supposing we do have geology, and chemistry, and agri-

culture in the school,—fifty weeks of work. There are people who believe that certain things can be taught incidentally when they are wanted, and the pupil get a great deal more or out them, than to make a direct course in those subjects, and not use them for a good while. The proposition I have put in here is rather tentative, and will not want any great explanation, but the point is this: That there be a course of one year in agriculture put in, and that under that course of agriculture all the chemistry and all the geology taught in the school be taught, and that the other ten weeks now in the course be given to the geography department. Those are the principal points in the paper.

Mr. Mitchell—It seems to me that the tentative proposition that you offer of an agricultural course is an opportunity to fritter away time, to use time and energy to disadvantage; that the time that would be given to a course in agriculture would better be given to teaching these same things as an integral part of the work in botany. You have a course already established in the Normal schools of which this is a part, and now the proposition is to separate your subject and turn one part off as agriculture, when it properly belongs in the line of botany. This would scatter the work and defeat the very ends of condensation of work. I do not see anything, so far as you have outlined that course, that may not with perfect propriety, be embodied in the course in botany, teaching the chemistry and soils,—that is, the chemical relation of the elements of the soils, incidentally, if necessary, or in connection with the chemistry of the school. It seems to me that the whole plan is scattered, and is diffusing our energy unnecessarily. More than that, it seems to me there is an objection in this. The state of Wisconsin has a magnificent equipment at Madison for the especial training of young people in agriculture, and they have gone to the expense and very great care in establishing a short course in agriculture that shall appeal to the young men and women, if I am not mistaken, in the dairying school of the state, to take that short course in agriculture, where they will get immensely more in that line than they will ever get in a Normal school. Now, it seems to me that we, as Normal school teachers, ought to oppose the institution of a course in agriculture *per se*, as long as there is nothing essential in that course that is not already involved in the present courses. I do not wish to stand as opposing that work,—the teaching of these topics to bring to the young people who come to the Normal schools from the farms, and who will either go back to the farms, or into the rural schools, a knowledge of those questions,—botanical, chemical, geological, or whatever it may be,—that pertain directly to agriculture. I should be very willing to put some sort of emphasis on the fact that we are doing that work, but doing it in the line of some other fundamental course of study, or line of study.

Mr. Dudley—It strikes me that the remarks of Mr. Mitchell are entirely out of order, because we are confronted with the course as established by the Board of Regents, and the subject is the purpose, plan, and scope of this course.

Mr. Mitchell—I understand that this is a course established in one Normal school in the state. A tentative course.

Mr. Upham—There is a course of ten weeks established in the Normal schools. In addition to that, the tentative part is to make

the course longer, and do this work combined with geology and chemistry. The ten weeks' course is not a tentative thing; it is here.

Mr. Dudley—I understood Mr. Mitchell's remarks to refer to the ten weeks' course, as well as to the tentative plan. However, I would like to ask the Chairman why he would not include besides geology and chemistry, botany and zoology also? Why should they not all come in there, and for that matter, increase it to a two years' course? Botany really is the fundamental thing in agriculture, is it not?

Mr. Upham—The point is this: That geology is taught in the Normal school, and unless we geological folks can justify that as we have been trying to do this afternoon, with its direct connection with the geography, it is in a shaky condition. One of these days the Regents will come down on us and say: "What have you got it for?" Keep the geology in, and keep the chemistry in. I have felt that both these subjects are in danger in the Normal schools.

Mr. Dudley—As the agriculture is in the course and may be given by any one of the Normal schools, it seems to me that it is out of our province to discuss whether it should be there or should not; take it as it is stated. I would make the same objection to a very large extent that Mr. Mitchell has done, and that I have already made in regard to teaching nature study, that it is too diffuse, that it is not hewing to the line, not accomplishing anything. Now that we have that course I want to put myself on record in just this one point: that if we can, in conducting it, eliminate the personal equation, and carry on the course in elementary agriculture as a science, distinct from the material benefit that the student, or that the agriculturist is to get from it,—in other words, to study the plant from the standpoint of the plant, to study the soil from the standpoint of the science involved in the soil; if to get a little more information in practical agriculture, I think it would be time wasted. If we could make the course in the Normal school contribute toward the fundamentals that all teachers should have, of marked increase in power by studying natural things in a natural way, instead of studying them merely to see what beneficial results can be obtained from it, then the course in agriculture will have as much value as perhaps any other ten weeks' course.

Mr. Culver—It is only a few minutes since I first saw the paper. As I understand it, this course in agriculture is for those students who are the very lowest, poorest, most unpromising we have in the Normal school.

Mr. Dudley—May it not be substituted for one of the other sciences?

Mr. Upham—No, it may not.

Mr. Culver—The students in that course are the weakest, most immature students we have. They are confronted with problems which involve something of chemistry, something of botany, and a little of geology, of which subjects they know nothing, and have had no opportunity to know anything,—therefore are handicapped exceedingly to begin with. The time is too short to do very much, and what is attempted to be done in this course, it seems to me to be difficult for them, although as simple as it can be. So I can't see much in favor of the course. In regard to bolstering up geology with this course, you will remember it is confined to the first year people, those who do not take the regular course, but those who take a special one year course. They are in no condition whatever to take geology, or chem-

istry, as such, and almost in as poor condition to take the extracts of these subjects necessary for this course. Whether we look at it from the standpoint of the present ten weeks' course, or from the extended one year course, it seems to me there is no excuse for it. Why not teach the same things distinctly under the separate heads as we do now? If we ever have a course in agriculture, put it in further along.

Mr. Goddard—I agree with what has been said with reference to doing this work in agriculture and feel that that is going to cover all the benefits to come from these other studies. Take the subject of chemistry, for instance. I feel that in chemistry, and the same would be true in other studies, there is great value in a logical treatment of the subject, in getting at some of the underlying principles of the science in a logical way, which gives us something of a basis for thinking about the applications, and it seems to me that with mature students such as we have in a Normal school, what they ought to have so far as the chemistry is concerned, is a knowledge of some of the fundamental principles in their logical relations before they can be able to make any applications of these principles in agriculture. You can give them something of this logical treatment, and incidentally call their attention to the application which can be made to agriculture. The work will organize our chemistry courses to make at least something of an application of the principles of chemistry to the subject of agriculture. Another thought in connection with the subject of nature study. I wish to say this: The subject of nature study seems to be in a crude condition at the present time. Everybody seems to feel that that work is a failure, and has not met with good results. The subject of nature study can be made to rest upon as sound a pedagogical basis as any work we have in our schools. It is because it has not been handled in the right way. Because we have not teachers who can get out and take it up with a definite purpose, and realize the purpose. We ought not to say the subject deserves no consideration because it has been a failure up to this time. If the subject is handled as it should be, it seems to me there is an opportunity there for increasing this subject of agriculture, of nature study to a much broader line of work, a much broader claim upon our teaching in the elementary schools for its educational value. I believe the time will come when our Normal schools will organize some work along the line of nature study. When we shall be preparing teachers to go out and do the right kinds of nature study work. When we get such courses in the Normal schools, they will cover a large part of this study of agriculture. Therefore, if this time comes, it seems to me it has its bearing upon the teaching of agriculture. It seems to me if we can teach it in connection with this broader subject, because it has a wider educational application, is not so specialized in its import, it will be a better plan to get this work in agriculture.

Mr. Perisho—If I should be at all consistent I should be obliged to oppose the plan suggested by the Chairman for this reason, that if we undertake to give to these students who have just entered for the purpose of taking a year's course in agricultural study, the course in geology, for instance, we would have to pull the geology away down so they could get it at all, or have a separate and distinct course in geology. We have not time to do that. Prof. Culver has touched the point exactly,—the student is not prepared to take the work. When

a student takes geology he has to have a series of steps through the scientific courses to prepare him for that work. It is a waste of time to bring the geology down to the level of the student. It is quite true that it may be possible for us to give a year of science work in addition which may apply to a year's course in agriculture. I have no objection to that, but do not take science work out of its regular place and put it down on a level with the student.

Mr. Mitchell—I think the Chairman stated that the purpose of this work in agriculture was rather to redeem and save geology and chemistry. Suppose we get the purpose of the Normal school right before us, where we can see it. Give them a good common school education, prepare them to teach in the public school. Does that course in agriculture come within the scope of that purpose? I fail to see it. It seems to me it never could be the purpose of that work in agriculture to save chemistry and geology. If that is the salvation of them, it is simply a case in which a thing had better not be saved.

Mr. Ewing—It is not within our province to say whether there should be a course, or not. It is there. I do not believe we are quite ready to say that it ought not to be there. Possibly Mr. Upham might give us some ideas of whether, with the assistance of the one year's course, which I presume he has looked into, it is meeting the ends. I understand in a general way that this one year's course is to help out the country schools. People who will come to the Normal schools for a year, who will almost certainly not go on to take even the elementary course, and who will not get the physics, will not get the botany, will not get these things, but will come and in this one year's course, will have this subject of agriculture. Under those conditions it looks to me as though if there is a demand for a one year's course, this is a perfectly legitimate and, so far as I can see, an appropriate part of it. Whether we shall combine the geology, we all know that is off the question. We have been appealed to, time and time again, by the State Superintendent, not to talk about that. I assume that one purpose of it is so that the country school teacher can help the boy and girl in the country school to know something about agriculture. Whether it is going to meet that end or not, I do not know, but it seems to me that must be the purpose, although I have not seen that that was exactly the purpose stated in the paper. If it is, and it meets that purpose, it seems to me there is justification for it. I am not very much in fear of its upsetting the whole Normal school curriculum.

Mr. Upham—The paper does not have but one sentence on the subject of the purpose, because I assumed that in this paper, and in all the other papers almost, coming before this body this week, the purpose was almost axiomatic. The purpose of these things is to prepare teachers to teach these things, or closely related things, in the schools of the state, and what is the use of spending two or three pages of a very short paper in discussing a thing which we all know about?

Miss Hatherell—I took the freshman work last year in the agricultural school, along with 150 freshmen, in soil physics and agriculture. As I see it, these boys are learning to farm, and they have not anything to take back to the children of the country. They will incidentally take it back, but that is not their business there. There is work being done in soil physics and in agriculture that a teacher could adopt with excellent results, it seems to me, in the instruction of

teachers who shall go into the country districts. You have perhaps in mind Mr. Harvey's institute circular, where he says the intention of this course is to enrich the life of the country child, and it seems to me that that is what we might be doing in such a course, in the one year course in the Normal school. It need not interfere with botany, or geology. There are things about the grains of corn, and the amount of moisture taken, that the child can know. It can be brought down through experimental means to the student. It will give him a body of knowledge that he can carry to these country districts.

Mr. Sims—I want to ask you, if you did this work, Mr. Upham, with the one year common school course students.

Mr. Upham—The class was made up of everything, from those first year course common school pupils to post graduates.

Mr. Ewing—Was anyone obliged to take it who was not in the one year course?

Mr. Upham—No, but everyone comes.

Mr. Sims—Your purpose is to give instruction in the art of teaching this in the common schools?

Mr. Upham—That is the purpose.

Mr. Sims—What part of your plan seemed to work to best advantage? With many European countries, for instance, the problem of securing an adequate amount of food from the soil is a very serious one. Germany, and France, and some others, are doing work along these lines. That time is coming to the United States. What special parts of this work do you find most profitable to those students?

Mr. Upham—One of the most profitable things that I have ever taught in connection with this work in agriculture, in the two years I have taught it, is the matter of soil moisture, and the conservation of soil moisture, and the relation of soil moisture to the soil, and of soil moisture to the plant. It has been an eye-opener to these farmer boys. They may not teach this course, but they have a little knowledge of the science of farming that they never dreamed of before.

Miss Devlin—It seems to me Mr. Ewing is right in his statement that this work is put into the first year course for those people who are going out into the country schools to teach. These young people are immature, and untrained; they have absolutely no training in anything but books. Their knowledge is simply in words. This work in agriculture is merely one phase of nature work. Instead of scattering all over nature work, they center on this one phase of it, and in their work it is not book knowledge, they are not teaching something from the book, they are taking an experiment, training children to observe these experiments, and to get some knowledge for themselves from the things, and not from words. Most of their education has been this,—simply teaching words that may mean something later on, but probably will not. This is the only thing that we have to give to these country school teachers along that line. I am inclined to think the Regents are right in putting this in the course for that purpose, if for nothing else.

Mr. Ewing—I should like to make a suggestion, that it is the opinion and sentiment of the assembly here, to look with approval upon the course in agriculture in the Whitewater Normal school, as it is, and for the purposes as we understand them. Some things have been said that have not been with the proper understanding of the course, and I am disposed to think that is our position now.

Mr. Merrill—I suggest that the teachers who are interested in agriculture meet with the teachers interested in geology tonight, and let us discuss both subjects. While the discussions have been very good, they have not exhausted the subject, and I think the time is coming when agriculture will be not only a course in the Normal schools, but will be a course taught in every public school in this state, in villages as well as in rural schools, and its importance is very great. Therefore I make that suggestion.

Mr. Upham—I will invite those interested to come to the Athearn.

Mr. Mitchell—There is a sort of feeling in my mind that this whole discussion is exceedingly inadequate. We go on record here, and our discussion of these subjects is to be read over by people who were not here, and who can't conceive of the inadequacy, perhaps, of these discussions. During this discussion the substance of this resolution comes up, which implies a rather long-headed plan looking into the future, a theory and not a condition with regard to the establishment of courses in agriculture in the common schools of the state of Wisconsin. Now it seems to me that when you realize that purpose along toward the tail end of the discussion, it makes a very great difference in the discussion itself, and in the attitude we are going to take in that discussion. I am in favor of the resolution on that basis, that it is simply an initial step toward a far seeing plan to bring to the common schools of this country something that shall rejuvenate and vivify, and give those children something that will enrich their lives in this course of study. But to make that under our present conditions I must go back to my other position. Do you not see the anomaly? It is not fair to the people who are discussing these questions, it seems to me. I thing it is due not only to me, but I believe it is due to every member of this committee.

Mr. Dudley—It occurs to me that it will be a little premature to take a vote on this motion just now, either one or the other. We have not been subjecting hardly any of these discussion to a vote. The point I want to make is that all these discussions have come up and are going on record, and why should we here and there, perhaps once or twice, subject a certain proposition to a vote that has not been any more fully discussed than the rest? If those who are interested in the elements of agriculture are to meet with the geologists tonight for further discussion, I would like to make the motion that this specific motion be laid upon the table until tomorrow.

Mr. Sage—I would like to say it seems to me we are not gaining anything by trying to put our approval upon something we know but little about. We are taking this on a very brief, simple discussion. The Regents have established it anyway. We are required to stand by and try to make it go, but why put our stamp of approval on something we do not know anything about?

Mr. Mitchell—We met for a specific purpose this afternoon. This resolution is immaterial, irrelevant, and does not come within the purpose of this meeting.

Leader—The original motion is seconded.

Those in favor,—Many.

Contrary,—One.

POSSIBILITY AND DESIRABILITY OF FIELD WORK IN GEOGRAPHY, BIOLOGY, AND GEOLOGY. CHARACTER OF WORK.

J. A. MERRILL, Superior.

I. What the question of field work involves.

In this day and age when the mind is so active in searching for the foundation of things, the teacher no less than his fellows of the other professions, is endeavoring to search out the fundamental requirements of his art. For many years teaching has been an honorable business; for a few years past it has been considered the new profession, and is now like the other professions grappling with fundamental problems. The age of uncertainty in the business of teaching when it was supposed that all people, young and old, must obtain knowledge in the same way, and when education was believed to consist in mastering the things that were, rather than the things that are, some curious practices were forced into existence which have had great weight in the solution of educational problems. Among these practices which became precedents are these,—that instruction should address the memory principally and the other powers incidentally, and that the subject-matter of instruction should come from between the covers of books or from the instructor. The grooves made by these and other similar precedents have been worn very deep and although there have been prophets with warning cries, these ruts are scarcely less deep than formerly.

In the struggle to get away from the old ideas, educational psychology has done its share and has established the fact that child mind is immature mind and must be developed as well as informed, and that the educational process must both develop and inform. It has recalled the solitary cries of Pestolozzi, Commenius, and Froebel, about interest, imagination, reasoning, etc., and has made them the foundation of modern pedagogy. Although much of this is due to the efforts of the psychologist, it is certain that science has done its share and that when educational problems are taken up in the light of modern science, especially of biology, they assume an entirely different aspect.

Biology has given the idea of evolution to the world and evolution means progress through difficulties. When this idea enters the educational field, it not only means that the mind must be looked upon as the theater of conflicting forces contributing to its growth, but that the subject-matter of a subject must be so arranged that in mastering it the student must see the forces involved at work and judge of their value by the results of their activity. By this means the student becomes a sympathetic observer and enters into the life of the conflict under consideration, not as a casual onlooker devoid of all interest except curiosity, but as one whose interest is thoroughly aroused by the reality of the elements at work and the vividness with which the expressions are made.

It is in this meaning of education that field work enters as a factor and in any other view of education it is an absurdity. If we confine ourselves to the meaning of the term, field work consists in leaving the room with classes and studying in the field; but clearly the objects of such work is to reinforce the work of the room and to fur-

nish the basis of future work. Therefore, field work does not begin with taking a class to the field, nor does it end with bringing it back. It consists in the use of natural, unhindered conditions in their proper relations in the development of a subject. Generally such a plan involves more or less study outside of the regular classroom, but manifestly much of it is done inside requiring nothing but mental processes. Its necessary elements are, a basis full, clear and distinct in which there is no uncertainty of vision; a development in which observation plays a fundamental part and is supplemented by the processes of comparison and reflection; and an application which connects the results with practical ideas.

II. Pedagogical relation.

The pedagogy of this kind of work is sound. It combines the elements of scientific research with the common branches and makes it possible to introduce true science work into grades of the public schools. It reaches the reason through the natural channels of mental activity. In the order of their approach, observation, comparison and generalization are constantly reached and exercised, but in addition to this, it has great value in that it directly appeals to the interest and arouses it so thoroughly that it controls the entire mental activity.

III. Comparison with text-book method.

The tradiflonal method of teaching sciences from text-books has been modified in recent years by introduction of laboratory work. Even in geography, the oldest of the sciences, the realm of the text-book has beeen invaded and laboratory exercises in the construction and study of maps and models are being used. It needs no argument here to sustain the statements that even the most watchful traveler finds difficulty in gleaning accurate pictures from the printed page and that those who have given no thought to the methods of the interpretation of nature can have little idea of what the writer is trying to describe. Alas, that all travelers who have the literary charm have not been trained in methods of interpretation; but even if they have not, they generally acquire a keenness of insight which demands a corresponding basis in the minds of the readers.

Text-book work in any science lacks vitality. When the idea thus reaches the mind it has passed through at least two translations since leaving nature and unless it be met with an experience in first-hand study, impressions are vague and unsatisfactory.

Laboratory work is a study of things but it is not always a study of living things. It is too often a study of structure, function and development—subjects of great importance in themselves—but leaving entirely out of consideration the social factors for which all others are fashioned. In addition to text, in addition to laboratory, there is needed that contact with living, ecological forces and processes which involve important values, to give a natural science its full uplifting power. To meet this demand it is desirable to have systematic field work in all grades from the kindergarten to the university in all subjects which deal with variation in any form.

IV. Possibilities of field work.

As a factor in the public schools the field work which I have described is not in constant use. It was used first in the kindergarten, then in the universities and colleges and now it has made its appearance in the grades.

The following specific suggestions will perhaps illustrate more fully the application of the foregoing principles.

1. *In geography.*

It must be remembered that geography includes all the science given in the elementary grades and therefore should be comprehensive and thorough. By this is not meant that there should be many topics or that they should be studied after the manner of the specialist, but that each type should be studied with such results in view as are within the comprehension of the children of the grade in which it is given. In formation and interpretation of contour maps of small and large areas, the study of surface, hill and stream, together with the mapping and definitions to which the outdoor study leads. In the fourth grade the studies of coast line and the representative industries of the community with the place geography which naturally grows out of such study. In the fifth grade, a more detailed study of the work of water and the formtion of streams, stream basins, and river systems, the the formation and productive power of soils, the growth of plants and formation and productive power of soils, the growth of plants and the the industry of farming and related industries. In the sixth grade the study of a bank as the center of commercial activity, a factory as illustrative of division of labor, the working of a city as a problem of history. In the seventh grade, geography generally gives way to history or is a study of text and maps with the application of previous work. In the eighth grade, if physical geography is introduced, it may consist of the study of the effects of erosion, the reduction of the landscape, the struggle between divides, the formation and occurrence of minerals and precious metals.

2. *In biology.*

In this subject the matter of field work is of a more advanced grade and could hardly be begun before the eighth grade or first year of high school. The preliminary problem involved is the structure of the animals and plants with special reference to points of advantage. This study takes place in the classroom or laboratory after which the class is taken to the field to study the sphere of life—the society,—in which the plant or animal lives, and to see the conditions influencing its tendency to variation.

A. In botany.

The following lessons are suggestive and a study of sixty minutes in the field is sufficient for each.

(a) The idea of plant life complete; the structure, organs and relations of a common phaneroganious plant.

(b) The notions of herb, shrub, and tree—ideas of prairie and forest.

(c) The location of plants depending upon the water relation.

(d) Parasites and saprophytes, principally fungi, and their relation to higher plants.

(e) Leaf display and its relation to sunshine and growth. Flowers and their relation to branches and leaves.

(f) Leaf coloration,—preparation for winter.

These lessons suggest nothing which show a demand for technical study. The depth to which the observation and generalization go depend entirely upon the capacity of the class and the time at its disposal.

B. In zoology.

The field lessons in zoology comprise a practical study of the prin-

cipal factors of evolution. The special animals studied have certain problems in connection with their environment which yield readily to the open air observer. The study in the field must be preceded by work in anatomy in the laboratory and followed by a study of varieties, species and genera, which are collected and mounted.

(a) Defense, involving elusion, imitation and voluntary aggression in insects.

(b) Specializations to overcome climate and enemies.

(c) Mimicry and coloration, especially in butterflies and moths.

(d) Domestic and political economy of hymenoptera.

(e) Spiders at home and away from home.

(f) Problems of food getting and defense in water animals.

(g) Habits and flight of birds.

(h) Movements and habits of reptiles and mammals.

These are but samples of lessons that may be extended indefinitely.

3. *In geology.*

This subject is generally put in the last year of the course after most of the science work has been done and therefore covers a broader field that the others. It includes them all. The principles developed in the other sciences are used as a basis for the study of geology.

If the field work heretofore mentioned has been properly done, much material for the rational study of the earth, geology, will be at hand; but if it has not been done, the plane of the work will be necessarily lowered. However a few preliminary trips will furnish the required foundation for the geological work.

Geology may be called the life-history of the earth and includes the effects of the physical and biological forces present and past on the structure of the earth. The field work should be arranged in accordance with the above ideas.

(1) Structural studies. This follows the laboratory study of about sixty common minerals.

(a) Study of as many kinds of rocks as possible in place, including soil, thus connecting laboratory study with natural occurrences.

(b) Studies of accidents happening to rocks in the process of adjustment, as faults, veins, and dikes.

(c) Studies of forces which make the earth's crust. Weathering—work of running water and formation of river basins.

(d) Studies of development of rivers. Coast line work—formation, sifting and depositions of clastic rocks. Effects of glaciation. Effects of internal heat—volcanoes, igneous rocks. Effects of strain—earthquakes. Studies of biological forces. Fossil bearing rocks—though fossil hunting is the least profitable of field trips, yet fossil beds may be made to represent horizons and therefore to restore ancient conditions. Study of a detailed area. Following the field trips for study of illustrations, and the mapping of the same to study map interpretations, an area sufficiently near to admit of two or more trips should be studied, mapped, modeled if time allows, and its history interpreted and written.

(a) VALUE OF ORAL EXPOSITION IN DEVELOPING TEACHING POWER OF THE STUDENT; SUCH EXPOSITION TO BE WITHOUT APPARATUS, AND OF EXPERIMENTS PREVIOUSLY PERFORMED.

(b) TO WHAT EXTENT MAY ORAL EXPOSITION AND BLACKBOARD ILLUSTRATION TAKE THE PLACE OF EXPERIMENTAL WORK WITH APPARATUS IN THE SCIENCE TEACHING, KEEPING IN MIND THE PURPOSE OF DEVELOPING GENERAL TEACHING POWER?

HON. L. D. HARVEY, State Superintendent.

As to the value of oral exposition in the development of teaching power of the student, my judgment is that the value of that exposition in developing teaching power is not always fully estimated. One of the most important elements that go to make teaching power is the ability of the teacher to express himself well, definitely, clearly, pointedly, without rambling, making a clean-cut exposition on whatever he is presenting. Training in oral exposition, and by training I mean exercise in doing it, is of the highest value. A student may learn much in the laboratory, but if he does not learn in connection with that work in the laboratory, the power of expression, so that he can put before his students clearly and definitely what they are to see, or, if he wishes, what he sees, there has been a failure. And I think that is a failure in the training of a large number of the students who go out from our laboratories. It is a failure not only on the part of the students from the laboratories of the Normal schools, but of the high schools, and even of the higher institutions.

Now keep this specific case in hand; the exposition to be without apparatus, and of experiments previously performed. I do not know a teaching exercise or a training exercise in the school of higher order in developing general teaching power than that. A student has performed his experiment, has reached his conclusion, has perhaps made his notes, and everything is done. Now to have that student stand, and without his apparatus, to make so clear an exposition to those who are listening to him that they shall see every step of the operation as performed in that experiment, demands close observation, retentive memory growing out of concentrated attention, a logical and proper order of relating the one part to the other that is of the highest value, not only in science teaching, but in any teaching. And I believe there is no place in the Normal school that offers such opportunities for this kind of training as the science department offers. It is of value as I said, not only in the teaching of science, but whenever that student goes into any work, no matter what it may be, that training which he has thus had can not fail to be of great value to him.

What does it demand of him? I think it demands certainly many of the things for which you train him in science, for which you put him to work in the laboratory. In the performance of his experiment, you set him to close observation. He must work either with a definite end in view, which I think is preferable for the elementary work in science, or must work hoping to find something. In any case he has to observe closely. If you set before him the problem of reproducing

orally every step of that experiment you have given an exercise in the concentration of attention, and in the orderly arrangement of what has been observed, that certainly can not be surpassed anywhere.

Now perhaps you may raise the objection, "We have not time." It becomes a question of values then. Some of you, perhaps all of you, are doing something of this. Perhaps what I am saying is entirely irrelevant. Last week I met fifty or sixty high school teachers for a few days. To those high school teachers it was practically a new proposition, and they raised at once the objection: "We have not time to do that." What is the time for? To do two more experiments, or half a dozen more experiments, or to develop power on the part of your students? I said to them, "You are training pupils; a few will go to the university, one in twenty, the rest out into life. Will not the training that they will get in that power to organize the results of observation, and to express them well on their feet, be of the highest value to them anywhere in life? in business, in society, in any of the functions which they are to discharge as citizens?" I would rather have in the science work fewer experiments performed, and perhaps a little narrower knowledge of science even, provided there were developed that power to express oneself,—to see first, next to do, and then to express what was seen and done cleary and well.

"To what extent may oral exposition and blackboard illustration take the place of experimental work with apparatus in the science teaching, keeping in mind the purpose of developing general teaching power?"

Now, who is to do this work? Sometimes the pupil, and sometimes the teacher. The teacher, perhaps, is to perform an experiment before his class. Is it not possible that sometimes without the performance of the experiment he may make an oral exposition, using illustrative work upon the blackboard, as may be needed, that shall make just as clear to those students the results which he expected to reach, as would have been the case had he reached them through his manipulation of apparatus in the performance of that experiment? Does it not demand closer attention and a higher order of ability on the part of the student to understand the exposition than the experiment? Perhaps you may say too high an order of ability. If so, if he hasn't the ability to do it, of course it is entirely useless. That will depend somewhat on the ability of the professor to express himself clearly, definitely, and in an orderly way, and upon his judgment as to what shall be undertaken and when. It is simply coming back to the old text-book idea, the text-book does that in the one case. But the text-book, it seems to me, may well be supplemented by this actual work of the teacher.

Now, gentlemen, I want to ask you, what is the particular value of a piece of apparatus, and the manipulation of that apparatus, in the performance of an experiment, when every concept is in the pupil's mind at the present time for which the apparatus and the various manipulations will furnish the percept, and all you have to do is to call it up? What is the use in this case, of manipulating the apparatus? There can be but one purpose,—skill in handling apparatus. There is no other value in it for training, as I see it. I have seen a large amount of experimental work going on in laboratories that seemed to me to utterly ignore that truth. I want to say to you, too, that I feel better about this after having talked with one of the leading university professors in this country, who is supposed to be an authority on this

subject. And he feels better, too, because he has entirely faced about on the position that he took some two or three years ago. He says of the high schools, "They are doing too much experimental work. We would rather have them come to us in the university with less of the work they attempt to do by experimentation, and more knowledge that can be gotten either from the text-book, or from the oral exposition of the teacher." I do not know that I quote his exact words, but I do know that I quote his exact thought. And so it seems to me that wherever the pupil has in his mind whatever is necessary to the understanding of what you wish to have him understand today without using apparatus, we should apply one of those maxims which we heard from Prof. McGregor, "Use the student's present capital." To relieve him from using his capital, and go out and borrow capital in the way of apparatus, and to use it in place of his own capital is not developing his power in the highest degree.

It seems to me that it would be well to train your students to use the blackboard and crayon for illustrative purposes, because if they go out to teach science they are not going to have very extensive laboratories, they must do without many things which you have. The power of expression thus developed will enable them to do many things which otherwise they would be unable to do with their limited laboratory equipment. I am of the opinion that it is quite possible that more work of this kind can be done with profit than is done in a great many of the laboratories in the state.

DISCUSSION—GENERAL.

Mr. Mitchell—Might not your exposition include diagrams or charts as a sort of substitute for apparatus?

Mr. Harvey—I intended to make it broad enough to cover anything of that kind.

Mr. Case—The question arises with me that a great many students study by visualization. I do. Now the question is,—Will it be worth while to insist on the student's seeing the apparatus rather than the diagram? My drawing is faulty, as is that of many science teachers. Would they be able to understand the thing they are dealing with, instead of carrying away a picture? If they want to reproduce it, they have a more faulty picture than mine probably, because it is second-hand, instead of knowing what the thing was. If a person happens to study by picturing to himself the thing he is dealing with, that is a different question. Pictures on the board take the place in chemistry of things that they ought to handle in the laboratories.

Mr. Harvey—I perhaps ought to say that this applies more especially to physics than to any of the other sciences.

Mr. Ewing—I understand you that after that experiment has been performed there comes the chance to tell exactly what has been done. I understand you to say that the teacher might deal with concepts that are clearly in mind. That does not imply the taking up of questions that can't be made familiar by actual experiment.

Mr. Harvey—There are two propositions: One with reference to the experiment; when experiments have been performed, then an oral ex-

position of them. In the second case here, it refers much more emphatically to the subject of physics than to other subjects.

Mr. Mitchell—The training that you outline would be accomplished best if the student made a presentation of what he had done, which the rest of the class had not done.

Mr. Harvey—Yes, that would be best. I think most of the students in the laboratory work perform nearly the same experiments. Would it not be worth while to introduce a variety of experiments purely for this purpose, not for the science? Get a variety. Here is one student who has performed a certain experiment. I want him to be ready to stand up before his classmates and put before them the steps in the experiment and the results so clearly that they will understand it, and be able to show that they understand it.

Mr. Dudley—I had a concrete illustration of that very thing. We had studied the amoeba, and I found half the students had a rather perfunctory idea of it, although I did not expect them to have a much better conception of it. The direction was given that they should bring in the next day a description of the amoeba, full enough, and illustrated enough by drawings, to be understood by a child ten years old. In other words, that description should be couched in language that the child could understand, that the drawing should be full enough and clear enough that the child might understand it. Simply for this one point, perhaps not to get a correct mental picture of the amoeba, but a mental picture which would at least stand for the amoeba. If a student in a Normal school can make a presentation of a subject like that, to a child, which the child can grasp, which he can get the philosophy of, and which he can understand in its essentials ,that very thing of being able to give an oral exposition by means of the blackboard and other illustrations, will be accomplished. I found the papers brought in the next day were extremely simple, and the supervisor of practice from that class selected one to present before the practice teachers' meeting.

Mr. Ewing—It seems to me that we are doing what Mr. Harvey has been talking about perhaps more than we are aware of. I have encouraged this same line of work, and we have done it considerably by having the student take his work down to the general exercise and present it before the school. The matter that was mentioned in regard to time is certainly an important one. One thing which we might do a good deal more, I think, and overcome the objection on the score of time, is coöperation with the teacher of composition or rhetoric. I know our teacher is perfectly willing, and I have given our teacher of composition science topics and urged him to encourage students to come to me and work out these topics with me, and then put it into the form of a composition and present it to him. The only difficulty is that the students have been allowed freedom to select their topics, and they are just as liable to read up on Ulysses as to do this other work. I am inclined to think this other work would be much more profitable. As to the benefit, it seems to me that comes almost solely to the student, unless it is a very simple experiment. Other students do not get very much from it unless they have performed the same experiment. One objection to this method is in the matter of time, in that the teacher of physics is teaching language, and ought to have the time charged to the language department. I should be very glad to teach the language, and have credit for it. I

do not believe it is quite right to take the limited time we have to teach science and spend it in teaching language, and it certainly does take a good deal more time when done in this way.

Mr. Perisho—I most heartily endorse Mr. Harvey's first point. The exposition should be a part of the laboratory work. As to the second point, I should like to ask Supt. Harvey if he does not intend us to understand that the student ought to perform enough at least of those simple experiments to be able to thoroughly understand and use them when he goes into the school, even though he has a home-made piece of apparatus. The student should at least perform a type experiment. He should also perform enough of these type experiments to become accurate, deft, and successful.

Mr. Harvey—I do not mean to give you the idea that I am trying to do away with experimentation. I recognize its value, though I think you gentlemen over-estimate its value, as a general proposition. What I do want to say is this: I want them to do certain experimental work. But when they have done that work, or when they have in their minds all the concepts necessary to the performance of an experiment, it is not essential to use apparatus, nor to take the time. With reference to the suggestion of Prof. Ewing, I think we don't want to lose sight of this fact, that general teaching power is what we are after, even in the physics class. If it falls short of developing this power of good oral expression, the time perhaps better be used, a little of it at least, for that purpose. I am heartily in favor of the coöperation mentioned by Prof. Ewing. Instead of looking in the encyclopedia to find material for a paper, let the science teacher sometimes furnish the subject.

---

a. POSSIBILITY OF AND MODES OF CORRELATING RELATED SCIENTIFIC KNOWLEDGE IN THE TEACHING OF ANY OF THE SCIENCES.

b. VALUE OF THE "LESSON PLAN" IN THE WORK OF CORRELATION IN SCIENCE TEACHING IN VIEW OF THE FACT THAT PROPOSITIONS 1, 2, AND 3, APPLIED, DETERMINE WHAT IS NECESSARY AND WHAT MUST BE MASTERED BY THE PUPIL IN THE LIGHT OF HIS PRESENT KNOWLEDGE OF THAT WHICH IS ESSENTIAL.

I. N. MITCHELL, Milwaukee.

POSSIBILITY OF CORRELATION.

As to the possibility of correlation, it is self-evident that related subjects of knowledge may be brought into co-relation in the teaching process, and successful teaching demands that they be so co-related.

The degree of correlation that may be secured depends largely upon the sequence of subjects in value and time in a given course. The desirability of the greatest possible degree of correlation and its consequent reinforcement of teaching are therefore reasons for making the sequence of subjects of primary importance. While it may be granted that there is an ideal sequence, it is certainly the belief of

most if not all of the teachers in Normal work that such an arrangement does not now exist. Under present conditions, environment, personal equation of teachers, teaching force, programs, maturity and immaturity of students, it is certain that the best possible arrangement,—even if it did exist,—would be only an approach to the ideal and therefore the degree of correlation attainable is much less than the maximum.

The only value of this statement in this connection is to raise the suggestive questions: Is the present sequence of subjects in any of the Normal schools the best possible under existing conditions? and, if not, is it not a fit subject for the most careful consideration and conference?

MODES OF SECURING CORRELATION.

A discussion of the modes of securing correlation applies to existing conditions as well as to any others; in fact, the less perfect the sequence the greater the necessity of modes of correlation.

The whole purpose of correlation is to enable the student to understand a new subject by relating it to something already known. The known acts as a foundation for the new and as a stimulus to the imagination. To determine modes of correlation, therefore, is to find means of introducing, in the classroom process of teaching appropriate forms of knowledge.

Some of the more evident modes of securing correlation,—whether it be of related sciences or in the sequence of ideas in any subject,—are:

1. The use of illustrations.—These illustrations may be brief statements,—oral or other,—pictures, charts, models, experiments, etc., involving, in the mind of the student, a recollection or re-presentation of some object of knowledge whose presence shall throw light upon the subject under consideration. A mere suggestion or reference to work known by the teacher to have been done by the student, if timely, often throws over a subject a flood of light, whose reflection in the face of the student is a fair evidence that the new thing has joined the apperceptive mass.

While, primarily, the illustration should come from the teacher, secondarily the teacher may use it as a test whereby to assure himself that his effort has been fruitful. By requesting from the members of a class additional illustrations, it is often made evident to the teacher that his own illustration has proven inadequate or inoperative and that additional work must be done. A call for additional illustrations from other members of the class serves the double purpose of testing them and of aiding the needy.

2. References.—It is very probable that, in many cases, a new subject may, for the most of a class, be adequately illustrated by a simple reference to work already done, while for one or more such reference is inadequate. In such a case it is often economy of time to give the student, on the spot, or at a conference later, a reference to some treatise or other authority on the subject that shall meet his need. Furthermore, it is often of the greatest importance that in the assignment of work for preparation references be given that shall enable the student to fully apprehend the matter on which preparation is asked.

3. Lectures.—It not unfrequently happens that, in the course of any line of work, lectures or talks are given on related lines of work by other persons, advantage of which may be profitably taken; or the teacher himself may often, to great advantage, address his class on some related subject for immediate or future use as indicated to him by emergency needs or premeditated plan.

4. Field work.—Environment is one of the potent factors in the understanding of many of the facts of biology, geology, geography and other subjects, and the examination of the plant or animal or other form in its natural relation to its surroundings often gives a more adequate idea than is possible in any other way

5. Collateral or library reading.—Library reading is now so fully organized as a means of teaching that it easily serves as a mode of correlation. The fact that this exercise is an adjunct of the department of literature does not prescribe that the work shall be confined to literature in its purely art forms, but allows the introduction, if desired, of history or science. There is a feeling on the part of many that science forms no part of literature in its purest and most beautiful forms. This, of course, is not true—can not be true as long as the literary master works with life. The library reading gives the science teacher an opportunity of using pure literature as a means of correlation.

6. Museums or collections of any kind that have a scientific value offer a fruitful source of material for correlation.

7. Teaching.—There are times when there is no chance for co-relating a subject to some other related science although such correlation is essential to the completion of the purpose involved. In such a case there is nothing to be done except to teach that portion of such subject as will make the desired relation, or to refer the students to works from which they may secure the necessary information.

8. Appeal to authorities.—As indicated in the earlier part of this discussion, it is the province of the teacher to aid the student by carefully selected references. It seems to me that it is no less the duty of the teacher to acquaint the student with a fair list of the best, up-to-date works on kindred subjects as an appendix to those on his own subject—from which the student may secure aid, and further, to teach him to use such aids and establish the habit of self-reliance and research. It is here that the chief value of the lesson plan appears. With this skeleton before him, he is best prepared to determine just what points are likely to need to be correlated to other subjects; the mode of correlation that will be most likely to meet the demand, and to provide and prepare the material that may be needed for such work.

9. Pondering and reasoning.—It is possible for the student himself to discover relations, to explain the new by means of the related old. It is possible for the pupil to change places with the teacher and, in the light of the maxim "Make yourself unnecessary as soon as possible" it becomes the duty of the teacher to place before the student problems that shall demand of him mental activity in studying relations—pondering over them to the end that he shall become independent.

10. Value of the leson plan.—The familiarity with the four fundamental propositions makes it unnecessary to repeat them here. Proposition one needs no discussion. Proposition two expresses the content of the subject. It is an analysis, more or less minute, of that content. This

analysis must be sufficient to enable the teacher to establish clearly the fourth proposition by subtracting, as it were, from the content all those parts of the subject that the student already knows. He is now, as nearly as he can be, able to know what he has to teach in order to complete his subject.

DISCUSSION—GENERAL.

Mr. McCaskill—Suppose we take the earth-worm—the points in regard to its structure. Your class have never studied the worm, and know nothing about it. Under the things that ought to be known, under 2, if you are writing out a formal plan, do you state the detail in regard to the earth-worm that you want them to work out? Can you make it come out even?

Mr. Mitchell—No. I can't make my laboratory work come out in forty-five minutes of recitation, and forty-five minutes of laboratory work. It is just as apt to be twenty or thirty, whatever there is need for. I begin every day's work with a sort of recitation. That is almost as invariable as the laws of the Medes and Persians. The student has done certain work for one or two periods of the day before. It is essential to me to have some idea whether he has got a grip on that work. Therefore I require a summary of the preceding day's work. I take a summary tomorrow of the subject. I may have been working a week on the subject of the earth-worm and have about concluded a line of work. I want a summary then of the whole thing to give him a little more perspective. He gets observations along the whole line together in logical order. I always insist upon the summary. In getting that summary my purpose is to train the student with reference to attention, observation, judgment, and expression. I have emphasized expression, because I am fully in sympathy with Prof. Ewing's statement that language is a part of all work. I am striving every day, in every recitation, for proper expression.

Now to answer your other question, which had reference to making out the details. I confess I do not do that in my own practice. I think a person beginning the lesson plan work, at the beginning would need to do it, at least once or twice, simply in order to get an expression of his own purpose and to know that he has in his own method the logical sequence of his steps.

Mr. McCaskill—If he makes a system of these laboratory directions, does he not do that?

Mr. Mitchell—In a way, yes. Because in his laboratory work he is simply analyzing his statement. I do not want it understood that I give my lesson plan to the class.

Mr. McCaskill—Do you give notes?

Mr. Mitchell—Not often; I only give the directions to the class.

Mr. Culver—What objection to putting it on the blackboard?

Mr. Mitchell—It seems to me that there is this objection, that if you put down the lesson plan, you are going to unfold many things to the student, by name at least, that he has not discovered at all. I want the student to reach some conclusions from his own observation. So far as the names alone are concerned, that would not cut any figure; but I do not think you can put a lesson plan with all the details on the

board without enabling the student to pre-judge. It takes away the edge of his own investigation.

Mr. Culver—In some studies that would be more true than in others, but in some work in physics, and some in geology, I find that a carefully written out plan is the greatest help in the world. It gives a logical method of procedure in studying the lesson.

Mr. Mitchell—I was speaking particularly of the laboratory work. They know of course at the beginning of the work, the general line of procedure in that subject. It may be plain biology. As an introduction I give them the four or five groups of plants. That work is given them in outline, and often in printed form, in order that they may know the scope of it, and the classes and subclasses of that work. I frequently go over in a sort of lecture to the class, some of the side points all along that line in order that they may see the scope of the work.

Mr. McCaskill—Would you give to those students any specific directions? Suppose it is a case of dissection. Can you, at the beginning of the exercise, give to those students directions enough to carry them through the work?

Mr. Mitchell—No, I would give them the general direction for the work, and I am right with them all the time and supplement the general directions by my personal attendance.

Mr. Upham—I understand, Mr. Mitchell, you begin most days with a recitation, and you go over the work of the previous day up to the time where you had to stop, and then go along as far as your time permits, and then the next day you pull them up again to see if they understand as far as they have been. That is my practice in chemistry a great deal. Keep the thing raked after clean.

Mr. Case—I was telling the people in geology some of the conveniences in Milwaukee, and they were rather surprised. Our president gave us ten hours a week of work, and we can either have two hours of laboratory work consecutively, or one hour recitation and one of study, or arrange it any way we please. Mr. Mitchell has the same facilities in biology as I have in physics and chemistry.

Mr. Upham—Do I understand then that you have the right to require of your students anything more than ten hours a week for your subject?

Mr. Case—Yes, we can have that.

Mr. Upham—If you have an hour's recitation and an hour of laboratory work, you are not expected to have that pupil spend any more time on that subject until tomorrow?

Mr. Case—That is, if the forty-five minutes are consecutive hours.

Mr. Mitchell—That is only partially true in my work. I have some difficulty in arranging the program. In the primary and intermediate course I secure just that end, but in one of the other courses, the kindergarten course, the class is large and unwieldy, and it is not possible to get in the two consecutive periods, and they consequently come to me forty-five minutes a day, with the understanding that they do forty-five minutes of work outside the class. I wish them to, but know they don't.

Mr. Upham—Do you suppose that they get along with as little time in their other studies, one and a half hours a day? Do you understand

that in history and in all the other studies of the school, the teacher gets along with an hour and a half a day of the pupil's time?

Mr. Mitchell—No, I know they do not.

Mr. Upham—Then why should we be shut off with an hour and a half a day and the history teacher have three hours a day?

Mr. Mitchell—No reason why we should.

Mr. Dudley—I know it is a sort of an unwritten law in a good many schools, that each subject should have one period for recitation, and two periods for preparation. In some schools the program of the students is made out on that basis, that it should take just twice as long to prepare a lesson as to recite it, and I have always proceeded on that basis. I take it to mean that a science teacher is entitled to two periods of time each day, if he chooses to demand them.

Mr. Perisho—Outside of recitation?

Mr. Dudley. No, including the recitation. Two schedule periods of the program. Then of course if the work is loaded on so heavily that he has to do some studying at home, he will have to do it. As a matter of fact, in one of my courses in chemistry I have two formal meetings in the recitation a week, and three days of the week the students meet in the laboratories two periods a day. In that meeting there is somewhat of recitation in the laboratory, just as Mr. Mitchell has mentioned at the beginning of the two periods. That adjusts itself. I think we have just as much right and get just as much right, in that respect, as any other subject, history or anything else.

Mr. McCaskill—There is one point in the plan brought out this morning in regard to the assigning of lessons, when the science teachers are conducting laboratory work, assigning topics, and bringing up work that can not properly be brought up in the laboratory. There is the lecture side, and when is that to be done?

Mr. Watson—I have understood that in the Milwaukee school they are insisting that no student shall take more than four studies at a time. Also that no teacher is assigned to more than four classes at a time. Is this true in regard to the science work?

Mr. Mitchell—I can speak for myself only. I have four periods a day in the laboratory, and library reading once a week.

Mr. Watson—That is, part of your work counts one class through two periods, and two other classes.

Mr. Mitchell—The kindergarten has two sections, forty-five minutes each; the intermediate one section in two periods.

Mr. Upham—Please state again how many periods you are tied up every day.

Mr. Mitchell—Four periods every day.

Mr. Dudley—On two subjects, or three?

Mr. Mitchell—Just now in botany, one. I hope you won't feel very bad about that, because this is my easy day. For five or six years I have been working with about 125 pupils a day, for five or six periods a day, right straight through. I don't know, but I have flattered myself that the president thought I needed a little rest.

Mr. Case—I have three laboratory classes. On the days on which I am in the laboratory, that means six hours. The days when they recite it only means three hours on an average of three days a week. Just at present my classes are reciting in physics, two classes and two days.

Mr. Upham—Please put it in periods per week.

Mr. Case—About fifteen periods a week.

Mr. Watson—Fifty-two.

Mr. Fling—Twenty-five now, and forty during the summer course, in the spring term.

Mr. Merrill—About twenty at the present time, or twenty-five.

Mr. McCaskill—Thirty-five. That means that there are some in one of my sections. I can't get them all together, they come at different hours, and I am expected to be in the laboratory with them seven hours a day. I am expected to be there every hour during the day. I have five hours with large divisions, when I must put in almost all of my time. Two others have few students, and I can give part of the time to my own work.

Mr. Culver—Thirty hours a week.

Mr. Dudley—Forty-eight.

Mr. Ewing—I am resting on forty periods.

Mr. Sage—There are two of us. I put in forty-five hours every week, and that does not include Saturdays, and students work Saturday forenoon. Miss Carter puts in between twenty-five and thirty, making about seventy hours a week.

Mr. Perisho—I have twenty recitations per week, and then I have laboratory classes every hour in the day, so if you count that, and begin at eight o'clock and at one o'clock, I should say twenty recitations, and twenty laboratory periods,—forty.

Mr. Upham—This is my easy time. I have at the present time only five periods a day,—twenty-five.

Mr. Watson—On the basis on which the others are reporting, I need to reduce mine; about forty-one will cover mine.

Mr. Merrill—I don't see how you can count forty or fifty hours a week, when there are only thirty-five in the school periods. If you count the length of time you spend in the laboratory, I spend from eight o'clock in the morning until six.

Mr. Upham—Are the pupils there all that time?

Mr. Merrill—All but one hour.

Mr. Dudley—At our school there are seven regular periods a day, beginning at nine and at two,—nine to twelve-fifteen, and two to four. I have a class at eight and at one, which makes nine periods a day.

DANGER OF UNDERTAKING ADVANCED WORK IN SCIENCE NOT WITHIN THE PROPER SCOPE AND PURPOSE OF A NORMAL SCHOOL COURSE.

A. L. Ewing, River Falls.

From this topic it is a fair inference that there is an impression that unwarranted advanced work is undertaken in the Normal schools. I cannot acknowledge that in the only school concerning which I have adequate information, we are consciously doing any such thing. That would be self incrimination. Regarding the schools as a whole my lack of full knowledge, as well as the proprieties of the situation, make it feasible for me to speak only on general principles. I am in full accord, however, with the committee in the opinion that the topic is

worthy of our consideration. The science teacher is, possibly, beset with temptations to lead his pupils beyond prescribed limits more than other teachers are. The fact that he is dealing with lines of information that constitute the foreruners of progress and civilization tends to make him an enthusiast and, possibly, in some cases induces him to attempt to lead his pupils to drink deeper drafts from the founts of learning than the purposes of our Normal schools contemplate.

It seems axiomatic that the thorough mastery of the elementary, the fundamental, should precede the advanced or any attempt toward it. This simple truth, together with time limitations and the intellectual condition of our students, so far as my experience goes, utterly precludes advanced work. If we take up the work in order of its importance to the student, keeping in mind the question whether he will ever be called on to teach the particular topic under consideration, or if not, whether it will have a direct bearing on other lines of teaching that he may do, or again, whether it will give him an insight into the nature of things and broaden his horizon, then the limitations will fix themselves.

To go into more detail: I would see the student in physics immersed in the work of a businesslike laboratory, where he shall make quantitative determinations with the question of accuracy very prominent. I should have him work in specific gravity, in the mechanics of fluids and solids, a few of the leading matters in heat, as the determination of coefficient of expansion, specific and latent heat. In sound I should have him attempt but few things quantitatively, as, velocity of sound waves and number of vibrations of a tuning fork. In light the law of inverse squares, the matter of mirrors and lenses, hinging as they do on the two simple laws of reflection and refraction, afford a fair amount of work of a semi-quantitative character admirably adapted to Normal schools. Along with this quantitative work I should have the student do illustrative work of a qualitative nature. In electricity practically all of the experiments may fall under this head. This laboratory work forms the basis of the class discussion. By these means the student is led mainly by inductive processes to discover and define many of the great laws of physics. If in taking up the work as thus hinted at, I find that there is no time for certain technical determinations that I should really like to have made, if the student is never able to use a hundred-dollar galvanometer, it does not cause me to wear sackcloth and ashes as much as some other things I know of.

In biology I would lead the student to as thorough an acquaintance with the great plant and animal world as possible: to the habits, relationships, structure and growth of these organic forms. While I should give attention to classification, and note a few types of aquatic forms, not represented at inland points, I should lay especial stress on forms that are most common. Familiar plants and animals, including cultivated and domestic forms, insects with their metamorphosis, our common birds together with the economic relations of all these, should constitute an important part of the work. These organisms should be studied as far as possible under natural environment. I should lay especial stress on laboratory work in the required botany. By means of these studies I should endeavor to lead students to inferences of the prevalent ideas of natural selection, and of plant and animal evolution. If I am able to attain, in a measure, the ends infimated, and others implied, even though I have not time to take up all the micro-

scopic studies I should like to, though my class is unable to dissect out the nervous system of a clam, and though they never hear of some of the abstruse biological questions before the scientific world today, still I can endure the disappointment.

In chemistry the student again finds himself attempting to account for the phenomena of his experiment. Early in the course he is led to a knowledge of the nature of matter that he had never dreamed of. He sees that he is just beginning to learn what things really are and how wonderfully they are constructed. He has gone from a knowledge of the molecule to that of the atom. And when he comes to weigh this undivisible infinitesimal, and study how it combines with other similar particles, now this way, now that, to form the infinite number of things in the universe, and how its properties affect theirs, then the ideas of these matters wholly beyond the range of his senses become convictions to him as mathematical truths are. He can now appreciate a fund of information along economic and industrial lines that was before outside of his mental horizon. A very few well directed quantitative determinations will suffice to illuminate this wonderful science.

In geology the student should became familiar, in a general way, with the evolution and growth of the earth as illustrated in the North American continent. He should learn its structure, the nature of its crust, the classification of its materials, and be able to recognize rocks of the great groups. He should know by simple tests their mineral constituents, and should know the chemical nature of these minerals. He should learn how the various forces have wrought upon the earth, and transformed it and brought it into its present condition; of heat and gravity in their contentions, the one heaving up the crust, relief making, the other wearing it down and grooving it out with water, air and other things as means. He should learn also of the organic evolution taking place on the earth, of the plants and animals in their progress through the geologic ages. He should know local geology in more detail, and go forth able to determine his geological horizon in other localities. If he does these things, and he can, I can bear with him if he does not know the technical names of more than the seven or eight minerals that really make up the great round earth. I shall not insist on his knowing the names of many of the great varieties of igneous rocks, and I can pardon him if his knowledge of fossils is confined to group names. Beyond the results aimed at in the individual sciences, the entire science course must give the student a background of information and scientific thought that will strengthen and reinforce his teaching along many lines. Possibly more than any one thing he sees (or may eventually see) how the mind of the race has wrought on this great array of material, and has solved its problems. He has a magnificent opportunity to study how the mind works. He sees that no matter how well trained the senses are they are blunt and clumsy instruments when compared with the acute reason reinforced by the trained imagination. No study of logic as commonly understood can compare with a proper course of science even elementary in furnishing means for developing reasoning power.

I would have the work so conducted as not to depress buoyant spirits with tedious computations and endless detail, but to give new inspiration and life. I would have the student feel that science does not consist of formulae and figures, of balances and books, of bones and brick-

bats and bad smelling bottles galore, but of the study of a great living, throbbing universe of which he is a part, and hence to know himself he must know what has preceded, he must know these broad things of science. It follows that the student who is deprived of one jot or tittle of this line of instruction, is thus far deprived of his just inheritance. What we may most hope to have the Normal student carry to the children of the public schools is a love of nature. It seems to me that delving into technicalities beyond a limit sufficient for illustrative purposes will not produce these broad and vivifying results. Neither will these results follow a hasty consideration of many things, or a superficial book learning about scientific facts.

It is rather in a study of the fundamentals that these ends may be gained, and until that is done, or at least the seeds sown for the harvest, any question of producing specialists, or of specifically science teachers should be relegated to other institutions.

The real question, it seems to me, becomes—How can we, under the limitations, best secure these large fundamental aims?

DISCUSSION—GENERAL.

Mr. Ewing—In the line of discussion I can say that two courses might be pursued. Of course any one who is touched by the wording of this question has the liberty to make a confession. In another way, it might be that one would feel disposed to remove the beams kindly from his brother's eye. I want to say to you that in nothing that I have said do I mean to suggest any such thing as that on my part. If in discussing it you wish to do that, that is your matter. So far as this paper is concerned, it seems to me the thing for you to do is to tell me without any particular mercy or regard for my feelings, whether I have done the right thing in attempting to draw a line of demarkation, and whether I have got the right things on one side, and the proper things on the other.

Mr. Watson—I would like to ask Mr. Ewing a question. I understood him to say that it was not the function of the Normal schools to prepare teachers to teach science in the schools of the state. Does he include all departments of science in that?

Mr. Ewing—I said until these other things were done, the fundamentals, the preparation of specifically science teachers should be relegated to other schools. Not that Normal school graduates should not teach science, but that we should not aim, at least until we do these other things, to prepare what you might call science teachers specifically.

Mr. Watson—It seemed to me that that was just the purpose of the Normal school. It is not the purpose of the Normal school to give advanced training in science to unfit the student for work in the public schools. That work is especially adapted for higher institutions. But it is the definite function of the Normal school in the science lines to give such training that pupils can go out and use that work in the schools of the state. I think perhaps Mr. Ewing and I are both on the same ground.

Mr. Sage—I want to ask a question of Mr. Ewing. I could not understand from the presentation of his paper, what he meant by ad-

vanced work in science. Whether he means work in advance or beyond the required work, or whether he means to distinguish between what is in the nature of the thing itself, elementary work, and what in the nature of the thing itself, is advanced work.

Mr. Ewing—That question presented itself to me right at the outset. I felt no liberty to put any special interpretation on it, but simply to get at what it seemed to me the question meant. And the interpretation that I did put upon it was, under all the conditions in which we must discuss all of these things with our programs as they are, with the science, which at least in most of the schools has been interpreted to be the minimum amount of science, should we attempt to do advanced work.

Mr. Sage—That is, strictly advanced work?

Mr. Ewing—Yes.

Mr. Sage—Were the items you enumerated advanced work?

Mr. Ewing—On one side advanced work, and on the other what might be so termed. It is a thing of degreee.

Mr. Sage—It does not seem to me that that is what I should make the difference upon. I call it elementary work, no matter what name it goes by, as long as you are sticking to the elements of a science, the foundation principles of a science. But when you get away from a consideration of the elements as elements, in a science, and go into them for some other purpose than that of getting a foundation in the elements of a science, you may be in the field of what I call advanced science. One element must be distinctive, intensive work. To take up the original elements of physics, for instance, and study them, is not doing advanced work, no matter how carefully we may do that. It is still in the elements of phsics. But to apply some of these elementary principles to some deeper or profound problem, is another thing, and constitutes what you might call advanced physics. Only those take it who are looking to a higher field of education, going to the university. The state, it seems to me, does have a right and even a duty within reasonable limits, to take these young men and women who say to the state clearly and distinctly, I am going to serve you in a higher field. We are not very numerous, but enough are ready so we can demand some time. I think there ought to be a distinction made between advanced physics, and continuation of elementary physics.

Mr. Ewing—This last work I did not have in mind at all. This whole question is one of administration, and not one for us to settle. In the question of what advanced physics is, as Mr. Sage defines it, I think we would all agree with that. I think we would all agree, also, that in all probability, that is not what the people meant in giving us this question. Without any regard to the technicality of what advanced physics should be, I was to discuss it as to what was meant by it in this connection. I did not think of it as elementary in the third year,—simply a continuation. It is all elementary physics. That is what I have advocated and that is what I have said, and that, it seems to me, is all we could most of us do, at any rate. Possibly Mr. Sage can do more, and if he can, and the Board has supplied him with means, that is their business, and I have no word to say about it one way or the other. Simply first do the other thing, and then if there is time I should like to have the advanced work done.

THE RELATION OF LABORATORY, CLASSROOM, AND TEXT-BOOK WORK IN SCIENCE.

ELLWOOD C. PERISHO, Platteville.

Outline.

I. The interpretation of the topic and general method of treatment of the subject of science teaching.

II. The aim of a course in science.

III. The things a student should acquire in a course of science.

IV. What of III. will be gained in the laboratory.

V. What of III. will be gained outside of the laboratory work.

VI. Both laboratory and classroom work being necessary.

Then—A. How should the time be divided between them?

B. Kind of work to be done in the laboratory.

C. Kind of work to be done in the classroom.

D. Relationship between the laboratory and classroom work.

VII. The text-book—Its use and abuse in a course of science.

This paper will discuss the above topic under the designation of laboratory, recitation, and text-book work, with a very close relationship between class and text-book as compared with the laboratory exercises.

I. The general method.

The proper teaching of science must, without exception, involve a training upon the part of the pupil that is scientific. To secure this we must not ignore the conditions most conducive to the natural growth of the student's mind. We must strive to make the environment such that his mind will receive the maximum development at the cost of a minimum expenditure of time and energy.

This I believe to be one great problem now before the teacher of science in our schools. We must learn to plan our courses and arrange our methods of presentation, whether by text-book or laboratory experiments, so that the learner will have the most vigorous and natural intellectual growth. Self-activity is fundamental to organic development. This is as true in mind as in body-growth.

Knowledge is not a possession gained from the application of an outside treatment. Knowledge comes from the mental activity of the student himself occasioned, as it may be, by some external stimulus. The teacher's business is to furnish the stimulus. This will in large measure constitute the pupil's environment. The laboratory furnishes an excellent environment for self-activity upon the part of the student. The mental training which a course in any one of our sciences gives, depends more upon the method of instruction than upon the nature of the subject.

Ther is a vast difference between simply performing an experiment as per laboratory problem, or manual, and deducing from the experiment the proper conclusions. The mere mechanical performance will be easy enough, but the realization of the proper result and the deduction of the correct conclusions are difficult enough.

In a proper science course, the pupil becomes the worker, the teacher is the provider of the material; the pupil becomes the investigator, the teacher holds the place of director; the pupil becomes the researcher, the teacher acts as a verifier of results.

In science the method is not different from other branches, the same psychological and pedagogical laws are applicable. In the main what is true of one science is true of all. However, there is difference in the character and perhaps scope of the laboratory work in the various subjects. If the science is geology or physiography, then by far the best laboratory is the field, out in nature's great laboratory where the agents of disintegration, transportation, and deposition are doing their work. These forces of nature are performing the experiments and the student has but to go out and observe, reason, and deduce a conclusion; yet, that the observation may be the most intelligent and at the same time bring to the student the maximum good with the minimum of time used—for no teacher can spend a large amount of time in the field with his class—the pupil must have been prepared for his trip before going into the field. This must have come from the classroom or text-book. Permit me here to state that too much importance can not be placed upon field work, correctly done, in geology and physiography.

Such sciences as chemistry and elementary botany or biology may, I judge, be successfully studied in the laboratory with a manual or by teacher's notes with but little reference to a so-called text-book.

The conditions are still different when we take up the subject of physics. This science is rather too complicated to be left to the inexperienced pupil with no aid from a text containing the theory of the subject which will supplement the practical laboratory experiments.

II. The aim of a course in science.

The purpose of any course in science taught in our Normal schools, is three-fold:

A. To give to the student by experiment, by observation, and by inference, a knowledge of the fundamental truths of the subject;

B. To give the student the power to make a practical application of these truths;

C. To give A and B according to established pedagogical principles, thus preparing the student to teach.

III. What a course in science should give a student.

Among the important acquisitions to be gained by a student in taking a course in science may be named:

(a) Power to observe correctly;

(b) Power to describe the thing seen;

(c) Ability to be accurate and skillful;

(d) Scientific method of thinking and working;

(e) Instruction in science psychologically given;

(f) Information about science historically true;

(g) Mental discipline and self-confidence which come from the acquired habit of thinking cleary and independently, producing intellectual power;

(h) Power to reason analytically and synthetically;

(i) Ability to express clearly;

(j) Acquisition of fundamental principles and useful knowledge;

(k) A closer acquaintance with and a greater love for nature.

IV. What the student gains from the laboratory—

The purpose and the realization of the laboratory course should be:

A. To teach the student to have practical and usable knowledge of apparatus including many delicate instruments which can only be useful under careful and accurate manipulation, in other words, to make

his hand follow his will. This every skillful manipulator must do. The mastery in the handling and using of one difficult piece of mechanism is a better training than the careless handling of any quantity of apparatus. Hence, too much importance can not be placed upon learning to do well what you attempt to do at all.

B. To give him training in seeing things as they are. To give him the method by which one can gain scientific facts. To make him accurate in his observation. This accuracy in seeing and afterwards recording the observed facts as they are concerning the phenomena, has within itself an incalculabe value separate and independent of the subject-matter under discussion. The proof of this we can see about us every day in the erroneous conclusions men draw concerning the phenomena before them.

The laboratory gives instruction in science not about science.

C. To train the student to record correctly what he has seen irrespective of any preconceived ideas, and from this to deduce a correct conclusion.

D. To verify certain principles taught in the classroom.

V. What the text-book and recitation give.

The purpose here is to give to the student:

A. Training in habit of correct thinking. Here he should be trained to reason logically and think scientifically. All this can well be done in the solution of problems. The classroom should make the student strong in powers of analysis.

B. In the recitation he should learn the great underlying principles of the subject, the facts that connect and bind together the truths learned in the laboratory and from the teacher's illustrations and experiments. Here the object is to increase the pupil's understanding of the subject and to classify and put in working order the knowledge gained in the laboratory.

C. The greatest use of the recitation, aside from the supplementary work of the laboratory is, perhaps, to give the pupil the practice of coining into well-worded phrases his conclusions from text-book study and laboratory experiments. The fact is not his own for certain until he can put it into the form of the expressed idea. His thought must become symbolized. The symbol is the written or oral recitation.

To show the relation between IV. and V. let me quote from Prof. Birge, dean of the university of Wisconsin. In a recent letter he said: "No real work in science can be done except through the laboratory, and no laboratory work is of scientific value unless guided and inspired by the ideas of the teacher."

VI. Both methods of presentation necessary.

If we have correctly discussed IV. and V., it is evident that both methods must be employed in the best course of science.

This being true our problem now becomes:

A. How shall the time be divided between the laboratory and the class-work?

No comparison will be just unless we understand that the time spent outside of the laboratory will result in as high a grade of work as that developed in the laboratory.

I judge that we shall all agree that no laboratory course of study is now more noted in the United States than the one known as the Harvard Preparatory course. Nor is there any man better know than

Prof. Edwin H. Hall,—who is largely responsible for the Harvard course.

Knowing that Prof. Hall some years ago made the statement that he then believed that the laboratory work, including the calculation based upon it, should not occupy more than one half the student's time, I was anxious to know what he thought after all these years of experience. In response to a recent letter, Prof. Hall wrote,—"What I then (1887) suggested I would now (1900) lay down as an emphatic rule and I should be inclined to make the laboratory work occupy less than one half of the time."

Prof. Henry Crew of the department of physics, Northwestern university, who has just published an excellent text in physics, says in answer to the question of the relative amount of time that should be given,—"I am inclined, at present, to the following view, viz.: that with younger students the number of periods spent in class should considerably exceed those spent in the laboratory. With college freshmen and high school students, this ratio might range from 3:2 to 3:1; with college juniors and seniors 2:2."

In my own work I have the time evenly divided, one period of 45 minutes per day given to laboratory work and the same length of time given to recitation.

B. The kind of work to be done in the laboratory.

In all courses of science many useful and necessary illustrations and experiments should be performed by the teacher or by members of the class from the teacher's desk. These will supplement both the work of the recitation and that of the laboratory.

In geology and physiography many qualitative experiments may be performed with great profit; but in physics I much prefer quantitative work. The student gets a better conception of the observed phenomena when he can measure it by means of numerical relationship.

I am certain the student's time in the physical laboratory should not be sacrificed in the performance of problems of illustration or even experiment of demonstration, nor very largely used in doing qualitative work. Never allow the laboratory to be divorced from the idea that here the student should learn skillful manipulation, accurate observation, and scientific deduction: here the student should learn to teach himself, to become his own instructor, by virtue of the new power gained in his well-directed laboratory course.

C. The kind of work to be done in the classroom.

The character of exercises the classroom should strive to secure:

1. The preparation of the student for his labortory experiments, when this preparatory work can not be given in the laboratory;

2. The discussion of the results obtained in the laboratory, and their application;

3. To give to the pupil the habit of correct thinking and clear reasoning by the solution of practical problems involving the principles worked out in the laboratory;

4. To give to the pupil many fundamental principles and much information not acquired in the laboratory work. But, as Prof. Corhart says: "Never let the classroom work be of the didactic or literary type." I much prefer to make the class exercise supplementary to the laboratory work. If experiments are given in class let them be of illustrative character.

Then, in a word, the class is the place where all the work done, whether in the laboratory or from text-book study, should be unified. It is the place where by explanation, application, and repetition, the few fundamental principles underlying and connecting the subject into a unity, are to be clearly seen and established.

D. The relationship which should exist between laboratory and classroom work.

This will again vary, depending as it does upon the science taught and the environments. But, in the main, I think I am correct when I say the classroom work should neither entirely precede nor altogether follow the work given in the laboratory.

I am certain no inexperienced student will be successful in his experiments without first having been instructed so that he may begin intelligently upon his problem; always being careful, however, not to give him enough knowledge to prejudice him concerning the results.

If the teacher can be with the student as he does his work in the laboratory, it is much the better plan. So much better is it, that it is the plan, when at all possible. But when this is not possible, the next best thing, as I have found it, is to devote a part of the following recitation to the discussion of the experiment performed the preceding day. This method takes it for granted:

1. That there is apparatus enough so that during the day each member of the class has had the same experiment for his laboratory work;

2. That the division of time between laboratory and class work is equally divided. Yet whatever the division of time between the two the general method will be the same. Some very excellent teachers have but little relationship between laboratory and class work. However, in this case they give many illustrative experiments from the lecture table.

VII. The text-book, its use and abuse.

The indispensable good which comes to the student from the culture, discipline and scientific training of the laboratory, is not within itself all that he should receive in the course of study. These fundamental truths and correlated principles and historical facts, which he should know, may well come from a text-book. Students in science have a right to expect that they will receive the best possible training in their course. The real students,—and from such our best teachers will come,—will be satisfied with nothing less than the best. The laboratory problem, the class exercise and text-book must all coöperate in a rich productiveness that will make the student rich in acquired power.

Let it be distinctly understood that the text-book referred to in this paper does not in any sense mean the so-called "text-book" which is both a text and a laboratory guide all in one.

The text-book, in no case, should be a key to the laboratory exercises. No text at all is to be preferred to one that asks and answers all the questions involved in the laboratory work. Too much stress cannot be put upon the condemnation of a text which is fragmentary, disjointed, encyclopedic in its character. Nor can we emphasize too strongly our disapproval of a text-book which has been written to prop up the weak teacher, or to make the subject easy for the busy one. The text-book should give a logical, consecutive presentation

of the subject taught, but always careful not to become a laboratory manual. It should present a few fundamental principles in such a continuity of form that the subject becomes a unit.

Remark.

Mr. Sage—I want to say that this paper seems to me to be very excellent in every particular. It meets my views in every item almost without exception.

REPORT OF LEADER.

PHYSICS.

It was agreed that the purpose of physics in the Normal school was preparation for teaching, and discipline, and that the best discipline results from the best teaching. The best teaching is thorough work, and is not to be obtained by going over the whole subject in twenty weeks, it being considered better to leave some subjects like electricity and light till the advanced course.

All work should be accompanied by laboratory work, two consecutive periods being secured if possible; laboratory work always being under supervision and running closely parallel with text.

The section was about equally divided on the question of the desirability of securing full sets of duplicate apparatus.

CHEMISTRY.

The section was in agreement with the paper of Prof. Culver that the purpose of chemistry is:

1. To teach the nature of chemical work.
2. To give acquaintance with chemical work and principles of chemistry.
3. To give facility in manipulating apparatus.
4. To give practical knowledge of the principal chemical elements, and their more important compounds.
5. A realizing sense of many and vital points at which chemistry touches life and should furnish—
6. An adequate basis for important phases of instruction in those other branches to which chemistry is fundamental.

To these the section added the great disciplinary value and training of clear and accurate observation and logical reasoning.

There was perfect agreement that the plan should consist of double periods, with laboratory work occupying at least half of the time, supplemented by reference and text-books.

BIOLOGY.

The purpose of general biology was stated to be:

1. To give power to see, to compare, to infer, and to apply.
2. To form a rational basis for the detailed study of botany and zo-

ology, and introductory course to advanced work, to give teaching power and teaching material.

3. To give a clear comprehension of the most fundamental laws and principles underling the life activities of all living beings, a knowledge of which should be at the foundation of nature study, or natural history of whatever name, of human physiology, and should enter into the general culture of every teacher.

4. With 1 and 3 accomplished, to enable teachers to carry on instruction in the limitless realm of nature-study having sufficient grounding in the fundamentals to take illustrations from the great world of life about them, even though many of them have not studied some of these forms, and to use them in a purposeful way, i. e., to aid teachers to rescue nature-study from the practice of making it a mere cataloging of things and a recitation of unrelated facts, and raise it to the dignity of the study of life relations, life activities, and life sympathies.

Some of the members objected to introducing work with the compound microscope in the elementary course, preferring to confine the work to so-called natural history lines.

GEOLOGY.

It was the opinion of most of the section that the purpose of geology is to fit the student to teach geography, and therefore special attention should be given to matter that will be of direct aid, viz., physical characters of common minerals, rocks and soils, dynamic action of ice and water, wind, etc., in shaping the present earth's surface. The plan should include laboratory and field work, readings, text-book and lectures. Less attention should be given to theories of the earth's origin, internal structure, thermal activities, and historical geology, and the student be guided to sources of information rather than held for accurate study.

GEOGRAPHY.

The scope of work in geography should include a knowledge of the earth's sphere, arrangement of mountains, with effects of moving water and effect of plant life, the atmosphere, the hydrosphere, the biosphere, the six continents, and everything that has vital connection with the life of the people.

AGRICULTURE.

No very definite conclusions were reached on agriculture, only four of the section having seen the paper. A resolution of approval of the Whitewater course was passed.

FIELD WORK IN GEOLOGY, BIOLOGY, AND GEOGRAPHY.

The possibility and desirability of field work in biology, geology and geography was advocated by J. A. Merrill, and warmly endorsed by the section.

PHYSIOLOGY.

The purpose of physiology was declared to be to teach hygiene, and in the ten weeks' course the scope should be about what is covered in Martin's "Human Body," briefer course.

"(a) Value of oral exposition in developing teaching power in the student, such exposition to be without apparatus and of experiments previously performed.

"(b) To what extent may oral exposition take the place of experimental work with apparatus in the science teaching, keeping in mind the purpose of developing general teaching power."

On these questions the section was in agreement with Superintendent Harvey's paper that oral exposition was extremely valuable in developing teaching power and that it might to a great extent take the place of the experiment, in fact, the experiment should be supplemented as soon as possible by oral exposition.

"(a) Possibility of and mode of correlating related scientific knowledge in the teaching of any science.

"(b) Value of the lesson plan in the work of correlation in science teaching in view of the fact that propositions 1, 2, and 3, applied, determine what is necessary and what must be mastered by the pupil in the light of his present knowledge of that which is essential."

The section believed with Prof. Mitchell that correlation was self-evident with related subjects, and that it might be done by illustrations, references, lectures, field work, library readings, museums, appeal to authorities, and by pondering and reasoning. The value of the lesson plan was agreed upon, especially in respect to the fourth proposition, by the application of which the teacher will know just what he has to teach.

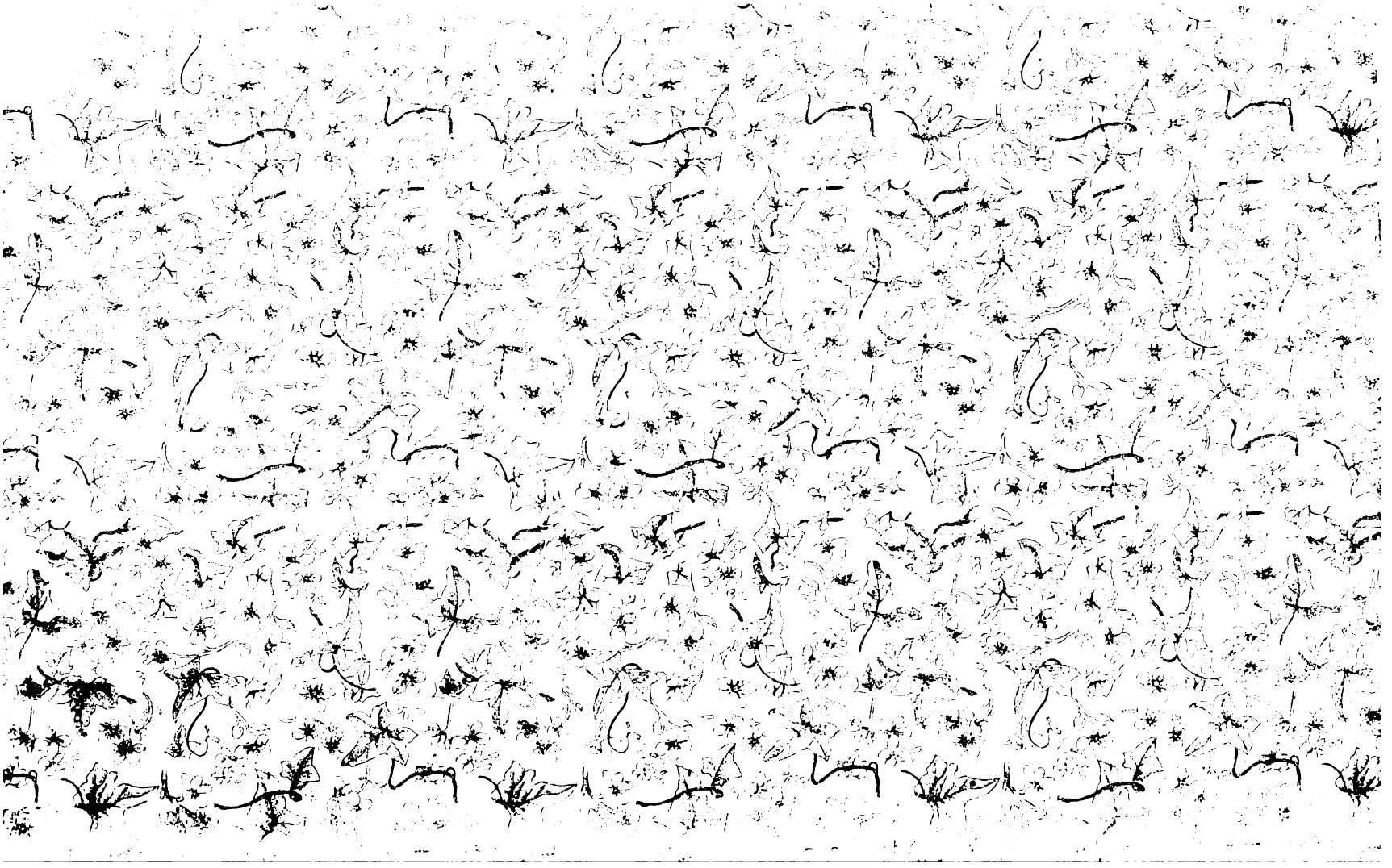
DANGER IN ATTEMPTING ADVANCED WORK IN SCIENCE NOT WITHIN THE SCOPE AND PURPOSE OF A NORMAL SCHOOL.

It was agreed that the chief purpose of science in a Normal school is to teach the fundamental principles of the science, but that there might at all times be a smaller number of students who are going to serve the state in a higher field, and who require more advanced work, which should be supplied to them if possible.

RELATION OF LABORATORY AND CLASSROOM WORK AND TEXT-BOOKS IN SCIENCE.

The section was heartily in accord with Prof. Perisho that laboratory and classroom work should run side by side in about equal proportions. That the laboratory work should be chiefly quantitative and under the direct supervision of the teacher, and that the text-book is another aid to the culture, discipline, and scientific training the subject affords.

A. A. Upham, Leader.



This book should be returned to the Library on or before the last date stamped below.

A fine of five cents a day is incurred by retaining it beyond the specified time.

Please return promptly.